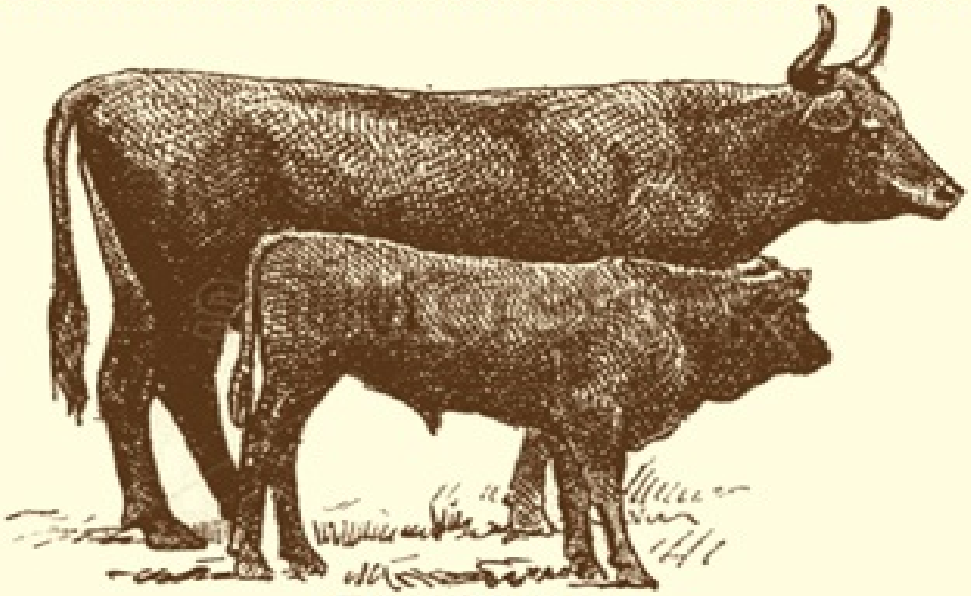
BACKYARD FARMING

Make your home a homestead

RAISING CATTLE

For Dairy and Beef

"EXPERT ADVICE MADE EASY"



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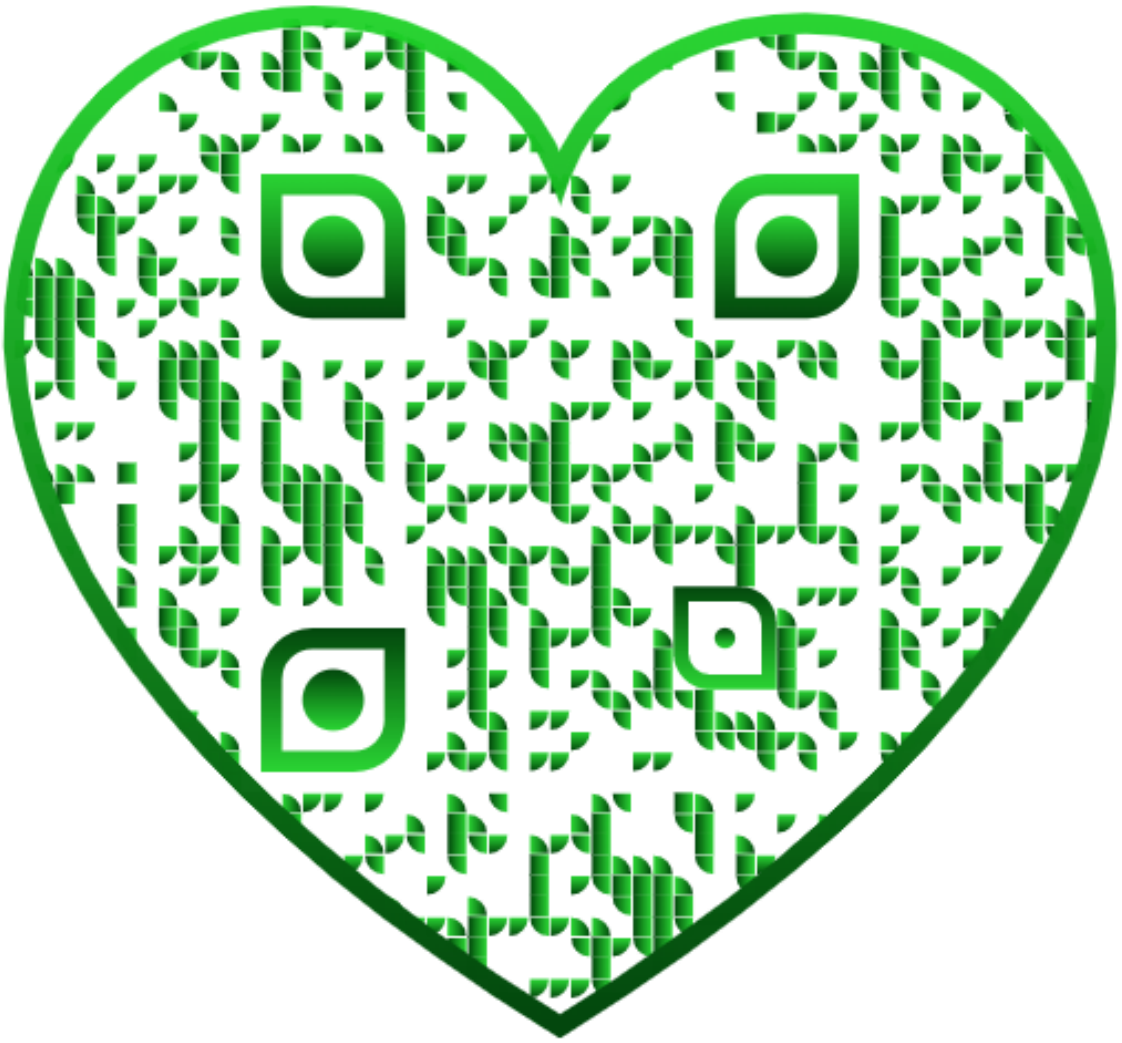

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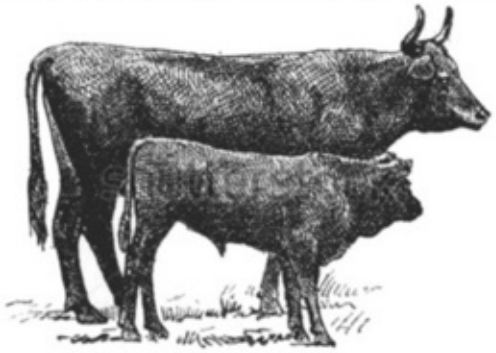

Kim Pezza

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INTRODUCTION

Not too long ago, the family milk cow was a staple to be found in the backyards and fields of many rural homes, suburban areas, and even in some city backyards. Cows were kept for any number of reasons: to supply milk for drinking and cooking, to produce cream for homemade butter, or to provide beef for sale or at-home use. Calves were often kept and raised, either for eventual sale or to serve as a replacement for an aging dairy cow. Farms raising cattle for beef could be found throughout the country; out west, ranchers both large and small raised beef on vast cattle ranges that seemed to stretch on forever.

Today, while the large beef ranches still exist, there are not nearly as many as there used to be. The family milk cow has become a rarity, and although the practice of keeping cows for home-use has begun to make a comeback, it is on a much smaller scale than before. But regardless, no matter how large or small the farm, ranch or homestead, when picturing the ideal farm setup, most will include cattle of some type as part of that picture. The benefits of keeping your own cattle are much the same as they were many years ago: to provide for your own milk and/or meat. The beef available for purchase today often consists of cattle—who are natural herbivores—which have been raised on feed containing the ground-up remains of other cattle. Likewise, dairy animals are being given hormones to up their milk production. Across the board, horrible conditions abound (especially in the huge commercial factory farms, feed lots and slaughterhouses). With this in mind, raising your own cattle allows you to control what goes into your animal, as well as how your animal is cared for, right to the end.

Whether you're interested in dairy cattle or beef cattle, are looking to raise a couple animals or a small herd, *Backyard Farming: Raising Cattle* is the first step in introducing one of the most well-known and well loved animals to your farm or homestead.

MEET THE EXPERT

Kim Pezza grew up among orchards and dairy and beef farms having lived most of her life in the Finger Lakes region of New York state. She has raised pigs, poultry and game birds, rabbits and goats, and is experienced in growing herbs and vegetables. In her spare time, Kim also teaches workshops in a variety of areas, from art and simple computers for seniors, to making herb butter, oils, and vinegars. She continues to learn new techniques and skills and is currently looking to turn her grandparents' 1800s farm into a small, working homestead.

CHAPTER 1

A BRIEF HISTORY

Although cattle ranches, cowboys and cattle drives seem synonymous with the western United States, cattle—whether dairy or beef—are not native to this country.

Cattle were originally brought to the Americas by the Spanish in the late 15th century, during the colonizing expeditions of that century that resulted in Spanish control of the area that is now Florida. By approximately 1640, the importation of cattle ceased (for the most part), as sufficient stock had been raised and made to flourish locally. At this point, a thriving cattle trade between colonies, with Spanish Florida serving as the hub, began to develop in North America, stretching as far south as Cuba. In the 1600s, additional varieties of cattle, notably those popular in Great Britain, began to be seen in North America during the British colonization of the eastern seaboard, going to New York, Massachusetts, New Hampshire, Virginia and Delaware.

So the first areas established for raising and breeding cattle in the United States were not in the west, as is commonly believed, but were rather in the Spanish settlements in southwest Florida. Historically, this area remains the oldest known cattle area in the United States, as well as the true origin of the American cowboy, nicknamed “crackers” for the sound their whips made when cracking in the air. The cattle raised in this area would become known as “cracker cattle,” which continues to be raised today, albeit as an endangered American breed, but is making

a comeback on small homesteads and ranches in southwest Florida.

But the origin of these animals goes back far beyond the establishment of Spanish colonies in the New World. It is believed that cattle have been domesticated since the Neolithic period, and may have evolved from a small population of approximately 80 **Aurochs** (an early cattle type, now extinct, which will be covered in Chapter 2) which were themselves domesticated over 10,000 years ago in Mesopotamia.

Currently, there are over 1 billion cattle in the world, dairy and beef combined, with approximately 89 million of those being located in the United States.

Cattle in Religious Tradition

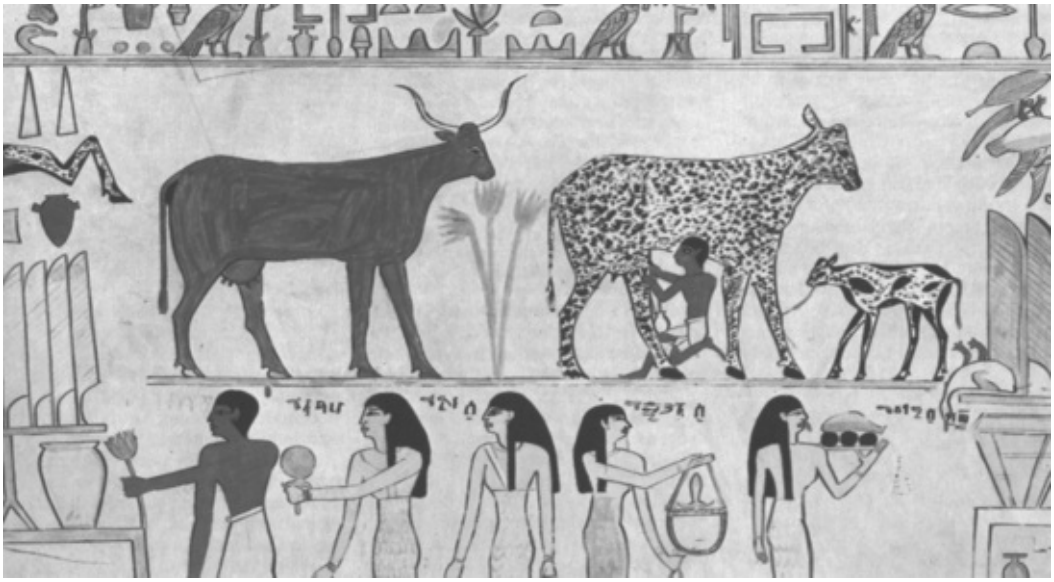
While the word "cattle" has had a number of meanings throughout history, today the word simply refers to the common domesticated bovine. But cattle have held a position of spiritual significance since ancient times, being found in religion and mythology of many different cultures. Long considered a religious and practical symbol of wealth, the word *cattle* comes from the Anglo-Norman *catel*, which itself comes from the Latin *caput*, meaning "personal property." The word *cattle* is also phonetically close to *chattel*, which retains its meaning as personal property in today's speech.

In the Hindu religions, the cow serves not only as a symbol of wealth, but one of strength, abundance, generosity and as representative of earthly life itself. In some of the Hindi nations, giving a cow a treat or snack is said to bring good luck, while injuring or killing a cow can earn the perpetrator a jail term (although slaughtering a bull may be permissible in some areas under certain circumstances). In fact, in Delhi alone thousands of cows wander freely among humans, protected in the same way as pedestrians. Sanskrit refers to the dairy cow as *aghnya*, or "that which may not be slaughtered."

In ancient Egypt the cow was considered to be a sacred animal, and even thought of as mother to the pharaoh. Often serving as a representation of the protective sky-goddess Hathor, worshipped as a goddess of love and joy, the cow was also used to represent the lesser goddess Hesat, who took the form of the cow to provide milk to humanity. The bull, too, had his place in ancient Egypt: Mnevis, an

aspect of the chief sun god Ra, was a living black, white or piebald bull, worshiped as a god in a special temple and considered to be an oracle. A symbol of the sun god, and honored in his name, the cow that had borne the bull was also worshiped as being an aspect of Hathor. After the bull's death, the Mnevis would be mummified and buried with honor in a special cemetery.

The venerated cow is one of the most recognizable symbols of Hinduism in the West.



Cattle have long been recognized as valuable commodities, and often appeared alongside other depictions of wealth and prosperity.

Greek mythology tells of the Minotaur, a creature with the body of a human and the head of a bull. Said to be a terrifying creature, the Minotaur was imprisoned within a vast labyrinth, continually supplied with sacrifices of young women and children until he was killed by the mythological hero, Theseus.

Today, cattle continue to play an important role in societies throughout the world. You can find cattle in all sizes and colors; on farms, homesteads and ranches, and even in a few backyards. In addition to providing milk and meat, they serve as a reliable source of labor and are even kept as pets. But with such a wide variety of animals available, with just as many applications, it is to the benefit of both you and your animals to select the correct breed or breeds for your needs.

Let’s take a more in-depth look at modern cattle breeds, to better understand these valuable animals. You may ultimately find that they carry a few surprises!

CHAPTER 2

TYPES AND BREEDS

Cattle are part of the **Bovine** family, and the most widespread animal of the species genus *Bos*.

Originally, *Bos* were comprised of three separate species—*Bos taurus* (European Haurine cattle), *Bos indicus* (Zebu), and *Bos primigenius* (the now-extinct Aurochs, the last-known member of which was recorded in Poland in the early 17th century, although attempts are being made today to recreate the Auroch through breeding programs using other cattle).

Modern cattle are now broken down as:

Bos primigenius taurus

Bos primigenus indicus

Bos primigenius

All modern cattle fall under the sub-species *primigenius*.

There are four different types of cattle:

Dairy

Beef

Dual/Triple Purpose (animals used for dairy, meat and sometimes draft/work)

Mini

Common Cattle Terms

Throughout this book, various terms will be used to refer to cattle at specific stages of their development. They include:

- Bull: Intact male
- Cow: Adult female that has had a calf
- Heifer: Young female before calving
- Calves: Young (of either sex) until weaned
- Feeder Calves: Beef calves after weaning
- Weaners: Calves from time of weaning to 1 year of age
- Steer: Castrated male
- Ox: Castrated male used for work or draft (though cows may be used as well)

It should be noted that cattle which are born *naturally* hornless are known as being **polled**.

Also, while the average weight of the cattle will depend on the breed or crossbreed, cattle can range anywhere from 600 pounds to 2,500 pounds, with the average weight being 1,660 pounds across the board. Finishing steers average 1,400 pounds, cows average 1,600 pounds and bulls average 2,400 pounds.

Let us take a look at the different types and breed examples of cattle. Note that cattle breeds which can be **dual or triple purpose** will be mentioned within their breed's description.

The typical dairy herd will consist of primarily females; although males do have a role to play, they are usually kept separate. Photo by Micolo J. under the Creative Commons Attribution License 2.0.

Dairy

Dairy cattle refers to those types and breeds of bovine that are bred specifically for milk production. Although it is only the cow that is the milk producer, both sexes of this type are considered to be dairy; males are used for meat, breeding or work.

In truth, any cow, be they dairy or beef, will produce milk after giving birth. Historically, many cattle breeds were dual or triple purpose, depending on need and available resources. Many cows remain dual/triple purpose today. However, cows that are bred specifically for milking *are* built for the task, and excel at providing milk. They tend to be thinner, with a much larger udder than those found on beef cattle. And, while a beef cow will usually produce only enough milk for her calf, a dairy cow produces more than what the calf needs, allowing her to provide much of the milk for human use as well. For this reason, dairy cows are also known as the "foster mothers of the human race."

In the following descriptions of breeds and their milk content, the term **butterfat** will be used. Butterfat, also known as milk fat, is the fatty part of milk that gives it its flavor and texture. It is the chief component in butter, and both milk and cream are sold according to

their butterfat content. You will also notice milk being discussed in pounds (weight), rather than in liquid measurement. This is for accuracy and ease in keeping milk records. Keep in mind that approximately 8.2-8.5 pounds of milk equals 1 gallon.

There are 11 North American breeds of dairy cattle. They are:

Ayshire
Brown Swiss
Jersey
Kerry
Milking Devon
Norwegian Red
Dutch Belted
Guernsey
Canadienne
Milking Shorthorn
Holstein-Friesian

Of these breeds, the Ayshire, Brown Swiss, Jersey, Guernsey, Milking Shorthorn and Holstein-Friesian are the six primary U.S. breeds, and represent the majority of the country's dairy cattle population.

Ayshire

The **Ayshire** first came to New England from County Ayr, Scotland in the 1820s. A medium-sized, mild tempered and easy-to-handle animal, the cows weigh in at over 1200 pounds, and bulls at over 1600 pounds.

The Ayshire comes in shades of red or brown, with either color traditionally having white markings. They do well under harsh conditions and in rocky areas (a trait which allowed the breed to thrive in New England) and can provide a large quantity of milk on minimal forage. However, for all their hardiness, the breed remains on the American Livestock Breeds Conservancy (www.albc-usa.org) watch list.

Ayshires give approximately 17,000 pounds of milk per year

(operating on a 305 day cycle), with approximately 3.9% butterfat and approximately 3.3% protein.

Brown Swiss

The **Brown Swiss** is said to have originated in the Swiss Alps. A resilient, hardy and docile breed, the Brown Swiss is resistant to heat and can survive on its own with little care or attention. They do, however, have a long gestation period, which is something to be aware of when considering the Brown Swiss.

The Brown Swiss first came to the U.S. in 1869, when a small herd consisting of one bull and seven females were imported. In 1906, another, larger herd of 34 cows and five bulls were imported. That same year, the Brown Swiss was officially recognized in the U.S. as a breed. Most of the breed's population in the U.S. was born here; only 155 **head** (one head is equivalent to one animal) have been recorded as being imported.

As the name says, the Brown Swiss is either brown or tan in color, with cows ranging in weight upwards to approximately 1,500 pounds, and bulls to approximately 2,500 pounds. The Brown Swiss cow produces approximately 17,000 to 20,000 pounds of milk per year (on a 305 day cycle), with 4.0% butterfat and 3.5% protein. It is this high butterfat content that renders its milk excellent for use in cheese-making.

Jersey

Bred on the Isle of Jersey (Britain), located near the Isle of Guernsey (the origin of a similar named breed, the Guernsey), the **Jersey** dates back hundreds of years, with the U.S. seeing their first examples of these valuable animals in the 1850s.

Known for milk with a high butterfat content and a genial disposition, the smaller Jersey cattle are a popular breed in the United States. Photo by U.S. Department of Agriculture under the Creative Commons Attribution License 2.0.

A small but productive breed, the Jersey is the smallest of the dairy cattle being used in the U.S., with the average weight running at approximately 800 to 1,100 pounds for cows, and approximately 1,600 pounds for bulls. The Jersey is a calm and docile breed, but can also be prone to nervousness or skittishness, and is therefore less suited for urban environments. They are, however, excellent for first-time owners and can make a good pet if well managed. Castrated Jersey males are excellent for oxen use due to their gentle nature, unlike their bulls, which can surprisingly be quite vicious. This added usefulness makes the Jersey a dual-purpose animal, for milk and draft.

The Jersey cow produces approximately 1,600 pounds of milk per year (on a 305 day cycle), with 4.9% butterfat and 3.7% protein. The Jersey's color is light fawn to black (usually fawn), with a black muzzle with a light ring and a black or white tongue and switch (the hairy end of the tail, used to swat flies).

Kerry

One of the oldest breeds in Europe, possibly descending from the Celtic

Shorthorn, the **Kerry** was originally bred in Ireland in approximately 2000 BC. Imported to the U.S. in 1818, it was a popular breed almost immediately, with its population reaching a peak in the 19th century. However, by the 1930s this breed had become scarce in the U.S., with only a few herds left in North America today.

Growing to a manageable size, with a hardy disposition that allows them to calf easily, cows range in weight from 800 to 1,000 pounds while bulls run to approximately 1,300 pounds. The Kerry cows' milk production averages 6,343 pounds per year (on a 305 day cycle) with 3.6% butterfat and 3.2% protein.

The Kerry is black with a little white on its udder and a satin-like coat. Horns are whitish in color with black tips. Although the Kerry is an excellent family cow, they can be very difficult to purchase due to their rarity. The American Livestock Breeds Conservancy lists the Kerry as critically endangered.

Milking Devon (American)

Originally descended from the British Devon, the **Milking Devon** was brought to North America in the 17th century by the British colonists colloquially know as "the Pilgrims." Considered to be the oldest and purest breed of American cattle still in existence, the Milking Devon is rare, with an approximate population of 400–600 head remaining, although that number is increasing. Commonly listed as a dairy animal, the Milking Devon is actually a triple purpose breed, meaning it is used for dairy, beef, and draft. As such, they are often sought out for oxen use due to their intelligence and strength.

The Milking Devon is a hardy animal and can survive in severe climate conditions. They have few calving problems and can survive on forage alone. They are a medium-sized animal, with a cow's weight running approximately 1,000 to 1,200 pounds, and bulls weighing an average of 1,400 to 1,700 pounds. The Milking Devon cow averages 4,255 pounds of milk per year (on a 305 day cycle) with 6% butterfat. The milk is known to make excellent butter and cheese.

Milking Devons have a dark, glossy red coat with white horns which ideally should be black tipped. The American Livestock Breeds Conservancy lists Milking Devons as critically endangered.

Norwegian Red

The **Norwegian Red**, or *Norsk rodt fe*, is a fairly recent breed, developed in Norway in the 1960s by crossbreeding various dairy breeds with Scandinavian breeds. In fact, the Norwegian Red continues to be involved in crossbreeding work, as today Norwegian Red semen is exported to North America for use in Holstein crossbreeding.

The Norwegian Red is known for its hardiness, hard hooves, high fertility, and short gestation, as well as having a better mastitis resistance than other breeds. Possessing few calving difficulties, the breed may be polled or horned. A medium-sized breed, a cow's weight can run up to approximately 1,300 pounds while bulls can come in at approximately 2,000 pounds. Milk production is approximately 2,200 pounds with 4.2% butterfat and 3.4% protein.

Dutch Belted

With a lineage that can be traced back directly to the original belted cattle in Switzerland and Austria, the **Dutch Belted** was established in the Netherlands in the 17th century. Imported to the U.S. in the 1830s, showman P.T. Barnum exhibited the Dutch Belted as a rare breed in his circus. However, in the 1900s the breed's numbers went into decline worldwide, almost leading to extinction. Today, the Dutch Belted remains on the American Livestock Breed Conservancy's critically endangered list.

Dutch Belted cows range in weight from 900 to 1,500 pounds while bulls run at approximately 2,000 pounds. Their colors are quite distinguished, being either black or red with a wide white belt around the middle of the body. The breed is largely self-sufficient, and can survive on grass and forage, and has few calving difficulties. Milk production by Dutch Belted cows is approximately 12,000 to 15,000 pounds with 3.5% butterfat and approximately 3% protein.

Guernsey

Originally from the British Isle of Guernsey, the **Guernsey** was crossbred by monks living on the island, who drew on French cattle lines: Alderney cattle from Normandy and Froment du Leon cattle from Brittany, resulting in a small breed with distinctive yellow skin and milk. The

breed arrived in the U.S. in about 1840. The Guernsey is a good grazer and easily managed, but bulls of the breed can become aggressive and should be managed accordingly.

Guernseys are a small breed, approximately 3/5 the size of the larger Holstein, with cows weighing in at approximately 1,000 pounds and bulls at 1,700 pounds. The milk of the Guernsey cow is golden in color due to it high beta-carotene content. Cows produce approximately 14,700 pounds of milk per year (on a 305 day cycle) with 4.5% butterfat and 3.5% protein. The Guernsey is on the American Livestock Breed Conservancy's watch list.

Canadienne

A historic breed developed in Canada, the **Canadienne** was the dominant breed in Canada until the early 1800s. It is an excellent breed for grass-based dairies in areas with low-quality forage. Canadienne colors can be black, brown, russet or tan with a pale, fawn muzzle and udder, and black tipped horns.

Cows weigh in at approximately 1,100 pounds while bulls may go up to 1,600 pounds. Canadienne cows' milk production averages 9,600–10,300 pounds per year (on a 305 day cycle) with 4.2% butterfat and up to approximately 3.6% protein.

The Canadienne is extremely rare and is on the American Livestock Breed Conservancy's critically endangered list.

Milking Shorthorn

Originally developed in Britain for beef, the **Milking Shorthorn** was nonetheless bred from animals which had been selected and bred for milk instead of meat. The first Milking Shorthorns (also known as Dairy Shorthorns) arrived in the U.S. in 1783, and were billed as a triple purpose animal, being useful for milk, meat and draft work. A hardy and durable breed, Milking Shorthorns have excellent feet and leg structure, as well as strong hooves.

Colors may be red, red with white markings, white or roan. They are equally likely to have horns or be polled. Weight can average 1,400 to 1,500 pounds for cows and 2,000 pounds for bulls. The cow's milk production is approximately 15,400 pounds per year (on a 305 day

cycle) with 3.8% butterfat and 3.3% protein. The Milking Shorthorn is on the American Livestock Breed Conservancy's critically endangered list.

Holstein-Friesian

Originating from North Germany, North Holland and Friesland, the **Holstein** was bred to produce large quantities of milk from a purely grass-based diet. Although Holsteins are excellent grazers unlike other breeds they do not do well on poor pasture. The breed came to the U.S. in the late 1800s and is now the most common breed on dairies both in the United States and worldwide, due to the large quantities of milk the cows produce. Larger than most of the other breeds, Holstein cows average 1,250 pounds while bulls average 1,800 pounds. Cows have large udders and are quiet, docile animals, while bulls may be quite vicious. Coloring is black and white with an all-white switch.

The archetypical "cow," the Holstein's black and white coloring makes it one of the most well-known cattle breeds. Photo by Ganaderia Goizalde under the Creative Commons Attribution License 2.0.

Milk production averages 28,000 pounds per year (on a 305 day cycle)

with 2.5–3.6% butterfat and 3.2% protein.

It should be noted that although these and other dairy breeds are used primarily for milk production, castrated males and culled females may also be sold for beef use.

When trying to determine the right dairy breed for your needs, you should consider the climate you are in, whether or not there is breeding stock available, the milk market (keeping in mind butterfat content), whether you plan to sell some of your product, and what you have immediately available for forage and pasture. In addition, as you will be working hands-on with these animals daily, you need to be sure you select a breed that you can handle and enjoy working with.

Beef

Although often classified as dual or triple purpose, beef cattle have been primarily bred and raised for meat production. **Beef** actually refers to the meat of the adult animal. As with dairy breeds, selective breeding has been used in the production of beef cattle to develop specific traits for the various breed types. Although there are a number of beef breeds, the following list is some of the most common to be found in the U.S.:

Black Angus
Herefordshire
Piedmontese
Wagyu
Texas Longhorn
Charolais
Limousin
Brahman
Simmental

Let’s take a brief look at these breeds individually.

Black Angus

The **Black Angus** was bred from cattle stock native to the Aberdeenshire and Angus counties of Scotland. In 1873, the first Angus bulls were brought to the U.S., imported to Kansas. At the time these animals were mainly used for crossbreeding, and initial opinions were not high regarding the Angus, even going so far as to call them “freakish.” However, once other ranchers and farmers began seeing the offspring, their attitudes changed and more animals were imported, this time for the purposes of establishing purebred herds. Between 1878 and 1883, approximately 1,200 head were imported to the U.S. from Scotland.

Although the Black Angus is the most common type of beef cattle in the United States, there is also a “red Angus,” the red color coming from a recessive gene. In the U.S., the black and red Angus are considered to be separate breeds from one another.

Black Angus are one of the most prevalent breeds in the United States due to a lack of calving problems, having calves of low birth weight but with rapid growth after birth, the ability to turn nutrients from grazing into body weight and the quality of their beef. However, the thin skin and deep black color of the Black Angus makes them a poor choice to keep in a tropical climate. According to ranchers in Brazil, it is for this reason that the Red Angus is preferred over its black cousin, as they adapt much better to the warm weather.

A naturally polled breed, the Angus may be crossbred with other breeds to create genetically polled animals, due to the fact that the polled trait is dominant in the Black Angus, and is therefore passed on to its offspring. Although the temperament of the Black Angus is not the worst of available breeds, both cows and bulls can have a nasty temperament, and they are not as calm as other cattle breeds. It should be noted however, that genetics can play a role in the personalities of these animals, so it pays to inspect potential members before adding them to your farm or homestead.

Gestation for Black Angus calves is approximately 275 to 285 days. The average weight of a cow is 1,200 to 1,600 pounds while bulls weigh in at 1,700 to 2,800 pounds.

Herefordshire

The **Herefordshire**, also known as Hereford or White Faced Hereford, is

a British breed from the Herefordshire area of southern England, known for its hardiness and adaptability, originally having been bred for beef and draft. A docile and fast-growing animal, Hereford is very efficient at turning pasture into beef and they can thrive in harsh climates.

The first Herefords in the United States—a bull, a cow and a heifer—were imported to Kentucky, and by the 1840s many more of the animals had been imported, becoming a favorite in the Southwest due to their hardiness. Although a sturdy and dependable animal, the Herefords are susceptible to eye cancer, especially those living in areas with an abundance of bright sunlight.

Although today we recognize the Hereford as having a red body, with a white head, neck front, underside and switch, they originally could be found with a mottled face, in colors of dark gray or light gray as well. But by the 1870s all but the whiteface variety had almost disappeared.

Hereford cows may run to 1,200 pounds while Hereford bulls can go up to 1,800 pounds. A breed known for its longevity, its cows may calve well into their teens, and stud bulls of age 12 or older are not uncommon. In fact, it is not unusual for good breeders to be kept for life, until their natural deaths.

Today, over 5 million pedigreed Herefordshires can be found in over 50 countries, not taking into account the number of non-pedigreed animals. It should also be mentioned that there is a naturally polled Hereford known as the Polled Hereford. However, this animal is considered as a separate breed.

Piedmontese

The **Piedmontese** originated in the Piedmont region of Italy. The breed is believed to have evolved over 25,000 years of natural selection, a product of the Auroch and the Zebu. A breed considered to be dual-purpose in Italy and classified as such, the milk of the Piedmontese is used for making the traditional cheeses of the region, such as Raschera and Castelmagno.

Producing a premium beef, Piedmontese meat is low in fat, less marbled, has less connective tissue and a higher lean-to-fat ratio than other beef varieties. It is also low in calories while being high in protein and omega-3. The Piedmontese has double muscling, known as

hypertrophic muscle growth, which is a natural mutation that developed in the breed, again as a result of natural selection.

Adult females of the breed are white with gray shading, with black skin and switch. Adult males may be the same white with gray, or a pale fawn with black hair on the head (specifically in the eye area, neck, shoulders and some areas on the legs). The calves are all born fawn colored, turning their striking white with gray coloring as they mature and grow.

The Piedmontese matures early and is known for their ease of calving, high feed efficiency and adaptability to climate. There are also known for their longevity.

Wagyu

An ancient breed, **Wagyu** were brought to Japan from the Asian mainland during the second century. Literally meaning “Japanese cattle” (“wa” meaning Japanese/Japanese style and “gyu” meaning cattle), the Wagyu is actually now classified as being four different breeds of cattle, classifications which were created in the late 1800s during the Meiji restoration.

The breeds are:

- apanese Black (Kryosh)
- apanese Red (Akaushi)
- apanese Polled
- apanese Shorthorn

Of these, the most common is the Japanese Black, comprising 90% of the beef cattle in Japan.

Wagyu first arrived to the U.S. in 1976, when a small herd consisting of two red and two black bulls was imported. In 1993, two males and three females were imported; later, in 1994, a further 35 head (consisting of both red and black, males and females) were brought to the States. Today, Wagyu are produced in Japan, Australia and the U.S. In the U.S., some Wagyu have been crossbred with Angus, resulting in American style Kobe beef, so called for the region in Japan of the same

name.

Wagyu beef is known for its intense marbling as well as a high percentage of omega-3 and omega-6.

Texas Longhorn

Originating from the first cattle brought to America by the Spanish over 500 years ago, the **Texas Longhorn** is the only cattle breed in the U.S. that truly adapted without the interference of man. Hardy, adaptable and aggressive, the Longhorn shaped itself to survive over the centuries, finally becoming the foundation of cattle stock in the Southwest.

Hardy, dependable, and independent, the Texas Longhorn remains a symbol of the American West. Photo by The_Gut under the Creative Commons Attribution License 2.0.

After the wholesale slaughter of the buffalo on the Great Plains, some Longhorn were shipped out to the United States Midwest to help bolster population. But by 1900, intense crossbreeding with imported stock had nearly eradicated the breed. The drop in population reached such lows that by 1927 some members of the National Forest Service elected to move a small herd of Longhorns to a wildlife area in Oklahoma to help preserve them. It was there that a few Texas cattlemen saw the value

and worthiness of the breed, and they arranged to have some small herds brought back to Texas. In 1964 the Texas Longhorn Breeders Association was formed, ensuring that the breed, which had been hovering near extinction earlier in the century, would survive.

Known for their very large horns, which can measure to 7 feet from tip to tip, each horn on a bull ranges from 50 inches to 84 inches, while horns on a cow range from 40 inches to 84 inches. Cows may weigh between 600 and 1,400 pounds while bulls can run between 1,420-2000 pounds.

Texas Longhorns are hardy and can survive on the hot, arid plains of their home state. They are known for their high fertility, ease of calving, longevity and the ability to exist on minimal range and forage. It is also a breed that is parasite and disease resistant. This is most likely due to the fact that nature, not man, developed the breed.

In terms of their meat, the Texas Longhorn is known for lean beef and being low in fat, cholesterol and calories. But not all Longhorns are used for beef (although it is primarily a beef animal). In some areas Longhorn cheese may be produced and purchased. Elsewhere, Longhorns have been trained for riding, due to their intelligence and gentleness.

For many people, the Texas Longhorn still represents the old American West; because of this, some ranchers keep small herds primarily for historic reasons, especially in Texas, due to the breed's connection to the state. In fact, the Longhorn is the mascot of the University of Texas in Austin.

Charolais

Originating in the French provinces of Charolles and Nievre in the 17th and 18th century, the first **Charolais** (two bulls) were imported to Texas in 1936. Around 1940 the first herd was introduced to the southern U.S., and by the 1960s the States saw a second herd introduced, this time in the north.

Charolais are known for their large size, with cows running in weight between 1,250 and 2,000 pounds and bulls between 2,000 and 2,400 pounds. Although they tend to prefer colder climates, Charolais are actually a popular breed in the South, and are replacing Herefords as the majority breed (although many of the Charolais are actually

crossbreeds). They are a docile breed and thrive in a variety of environmental conditions, with a short white coat in the summer and a thicker, longer coat in the winter. Their skin is heavily pigmented and they calve easily. They are a naturally horned breed, although crossbreeding and genetic work has begun to produce naturally polled varieties as well.

Although primarily a beef animal, Charolais are also used as oxen, and the cows can be milked. Crossbreeding of the Charolais and Brahmas varieties produced the Charbray, which itself has become a recognized breed.

Limousin

The **Limousin** is a very, very old breed of cattle. Originating in the central Marche and Lemousin regions of southern France, drawings of what appear to be the Limousin cattle, including the telltale red coloring, can be found painted on the walls of the Lascaux cave, the drawings which have been carbon dated to be somewhere between 20,000-30,030 years old.

Due to the isolation of the region, the breed has had few outside influences. As a result, they are hardy and adaptable, but have developed a volatile temperament, leading them to be unpredictable at times—Limousin have been known to clear a fence—all of which are traits that may seem unfavorable, but were necessary to the breed's survival. And it should be noted that, in regards to the breed's temperament, most breeders disagree that the animal has any issues, stating that the breed's temperament has undergone a great improvement.

The first Limousin came to North America by way of Canada in 1968, arriving in the U.S. in 1971. The breed can now be found in 70 countries.

Limousin cows will weigh up to 1,543 pounds, while bulls may go over 2,400 pounds. Their common color is red with wheat-colored underpinnings; however, there is also a black variety of the breed. Three important traits that the Limousin has and which attracted breeders in the first place are their excellent feed efficiency, their adaptability and a high carcass yield. Their meat is tender and fine fibered due to the low

fat levels. It should be noted however, that the initial use of the Limousin was as a draft animal, only being slaughtered after they were no longer able to work after an accelerated fattening process. It is only in the recent few decades that the breed has been looked at for beef stock.

Brahman

Also known as Brahmas or Zebus in some areas, **Brahmans** were created in America from crossbreeding cattle from India (*Bos indicus*, which are also the Sacred Cattle of India). The four breed varieties are Kankrej, Gujarat, Nelore (ongole) and Gir (Gyr). Developed in the early 1900s, the Brahman is the first beef breed developed in the U.S., originating from 266 bulls and 22 females that were imported to the U.S. between 1854 and 1926.

The Brahman is a medium-sized animal, with its cows weighing in at approximately 1,000 to 1,400 pounds and its bulls from 1,600 to 2,200 pounds. Their colors vary but light gray, red or black are considered breed acceptable. Two physical attributes that stand out on the Brahman are the hump on the back and lots of loose skin, especially in the neck area. The hump, a deposit of fat, acts similarly to a camel's hump, storing food and water. The loose skin or *dewlap* is thought to help the animal withstand warm weather by increasing the amount of its body's surface area exposed to cooling. Brahmans are extremely heat tolerant, making them an excellent choice for the tropics, and have a number of other favorable traits as well.

Brahmans produce less internal body heat than other breeds, which also contributes to their extreme heat tolerance, as they show no adverse effects from extreme heat. They are adaptable to their environment, excellent mothers, and efficient beef producers. They have great physical stamina and calve easily. In fact, it is not unusual for cows to be calving well into their teens and they can continue to reproduce even in stressful environments. Their thick skin has dark pigmentation which helps protect them against intense sun rays and prevents eye cancer. It also helps make the Brahman resistant to insects. All of this combines to create a breed that is both hardier and longer living than many breeds.

The Brahman's disposition is one of intelligence, inquisitiveness and

shyness. They like affection and can become docile; however; they will also respond appropriately to the type of treatment that they receive from their handlers. Brahmans have been extensively crossbred with other beef breeds, including the Angus, which has produced the Brangus. Other breeds that have resulted from various Brahman crosses are Simbrah, Beefmaster and Santa Gertrudis.

Although Brahmans are primarily bred for their beef, they are also being crossbred with dairy breeds such as the Jersey, Holstein and Brown Swiss. This crossbreeding is taking place primarily in the southern U.S., as well as South and Central America, in order to create a dual purpose breed that, like their beef counterparts, is adaptable, with good fertility and longevity, reliably disease-resistant and a good fit for the tropics.

Besides the U.S., the Brahman can also be found in Brazil, Argentina, Paraguay, northern Australia and Colombia.

Simmental

Originally a triple purpose breed originating in the Valley of the Simme River in the Bernese Oberland of Western Switzerland, the **Simmental** is recorded as far back as the Middle Ages. Other European breeds, such as the Montbeliarde, Razzeta d'Oropa and Fleckviehs, trace their origins back to the Simmental, with the crossbreeds being created to continue either the milking traits of the Simmental, or for their beef. However, the popularity of the breed in the United States did not really come about until the 1960s, with the first purebred calf being born in the U.S. in 1968 through artificial insemination with a female. Until then the small population in the U.S. was used mostly for crossing with other breeds.

A docile breed, cows range in weight from 1,542 to 1,980 pounds, while bulls can reach 2,866 pounds. Colors range from a pale, light gold to a very dark red, verging on black, all of which usually have a white face. Simmentals may be horned or polled. They have a heavy dewlap (skin that hangs under the chin) and have pigmentation around the eyes, which reduces eye problems caused by bright sun. They easily adapt to various conditions, have a high (as well as long-term) fertility rate, are easy to handle, calve easily and are excellent mothers. They also produce

a naturally lean beef.

There are approximately 800,000 Simmentals registered in the U.S., with an estimated 40 million to 60 million animals worldwide. Popular crossbreeds are Sim Angus (a cross with the Black Angus) and Sembra (a cross with Brahmans, the result of which has made the Simmental more adaptable to the Southern U.S.).

Minis

Both the dairy and beef cattle world have miniature or **"mini" breeds**. Although you may not see them on the big dairies or ranches, mini breeds are gaining popularity on small farms and homesteads that have limited space for livestock. With the exception of the Dexter, which is a naturally small breed, most mini breeds were created by breeding other breeds down; in other words, breeders selected the smallest sized animals in a litter to breed from the already established normal sized breeds. In recent years, many small breeds were created by crossing them with the Dexter.

Usually between 36 inches and 46 inches in height, minis may be bred for beef, dairy and/or draft with some breeds being dual or triple purpose, just like their normal size counterparts.

The International Miniature Cattle Breeder Society and Registry recognizes 26 breeds of minis, including:

)exter

/ini Texas LonghornMini Hereford

/ini Jersey

/ini Zebu

Just like with full-size cattle, minis should be selected based on climate, the purpose for which the animals are being kept, and environment/terrain. And, as with full-size cattle, you will be dealing with these animals on a daily basis, so owner's preference should be considered as well.

Now let's take a very brief look at these five examples of recognized breeds that were just listed. Note that, as breed characteristics and

temperament are usually similar to those of their full-size counterpart, there will not be a need for as much detail on these breeds. Also, as mini cattle are still difficult to find in many places, resulting in prices that are usually high for these animals, miniature breeds are rarely the first step for new handlers (although some will choose to take this route due to space concerns).

Dexter

Originating in southwest Ireland, **Dexters** are a naturally small breed of cattle. Brought to England in 1882, the breed disappeared from Ireland entirely; it was only in England that a number of small herds could still be found. Owing to their small stature, cows will range from 36 inches to 42 inches in height and 600 to 700 pounds in weight, while bulls will range from 38 inches to 44 inches in height and run approximately 1,000 pounds or under. The breed is naturally horned; however, in the 1990s a polled strain was developed that still exists today. The Dexter can have short or long legs.

Dexters are usually black, red or dun in color, although black is the common color. Their horns are small, with tips that curve forward on males and upward on females. Despite their small size, Dexters are actually a triple purpose breed, and although breeders will usually focus on either beef or dairy, they can also be used for oxen. A Dexter that is milking can produce comparatively more milk for its size and weight than any other cow. The milk is high in butterfat, measured at approximately 4%, and she will produce 2 to 2½ gallons per day. Those that are used for beef mature at 18 months and will produce small cuts of high quality, choice lean beef. There is little waste, with well marbled dark beef.

Dexters are friendly, versatile and make good mothers who will often foster other calves. They have a high fertility rate and calve easily. A Dexter requires less pasture than other breeds, making them ideal on small farms and homesteads. They thrive in the heat or cold, and if provided with shelter, windbreaks and fresh water (as well as food) they can do well outdoors year-round. Many of the recently created mini breeds have been developed by crossbreeding using the Dexter.

Mini Texas Longhorn

The **Mini Texas Longhorns** are miniatures of full-sized, purebred, registered Longhorns which have been created by breeding down. By selecting the smallest of the full-size Longhorns to breed with each other, the result is offspring which still retain similar characteristics to their full-size counterparts, but which are ideally suited to smaller scale areas and production demands.

While the height of the Mini Texas Longhorn should be no more than 45 inches, other standards are similar to the full-sized animal. The Mini Texas Longhorn are usually bred and kept as pets, though they can still be considered as a potential source of beef.

Mini Hereford

The **Mini Hereford** was developed during the 1960s. They are recognized by and registered through the American Hereford Association. The Mini Hereford ranges from 38 inches to 43 inches in height at the hip—approximately 35 to 50 percent the size of their full-size counterparts. That said, the breed traits and breeding characteristics of the Mini Hereford are essentially the same as for the full-size Hereford.

Mini Herefords are docile, easy to care for, make great pets, are very fertile and adaptable, are very nurturing mothers and produce a tender meat. A good "backyard beef" choice, two to three mini Herefords may be kept on the same amount of pasture space as one full-size Hereford, while requiring half the amount of grain and hay.

Mini Jersey

The pure **Mini Jersey** is not a new breed, nor is it bred down from the Jersey we know today. The Mini Jersey is actually the original Jersey—the direct descendants of the original animals imported from the Jersey Islands, and have retained the same size and characteristics.

The Jersey was first imported to the U.S. in 1850, but by the late 1940s and early 50s the Mini Jerseys were losing favor while the larger ones we know today were evolving in response to commercial needs. Today, the Mini breed is making a comeback, both in its pure form as well as those developed as a product of crossbreeding. The Mini Jersey is

36 inches to 40 inches high, with cows weighing in at approximately 600 to 650 pounds and bulls coming in at around 800 pounds. Calves are approximately 10 to 20 pounds at birth. Cows can give 2 to 2.5 gallons of milk per day, with an average 4% butterfat. They are hardy, thrive in any climate, are good-natured and easy to handle. Calving is usually no problem for the females.

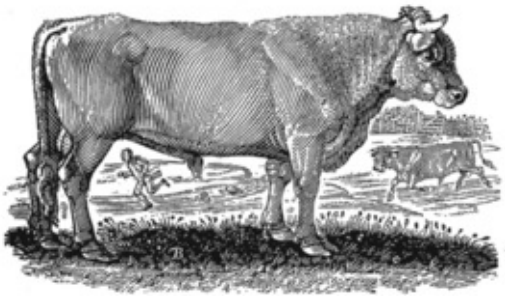
The Mini Jersey needs an average of only ½ an acre of grass or 10 pounds of hay per day, plus some grain. The Mini Jersey can be quite lovable and like other minis can make great pets.

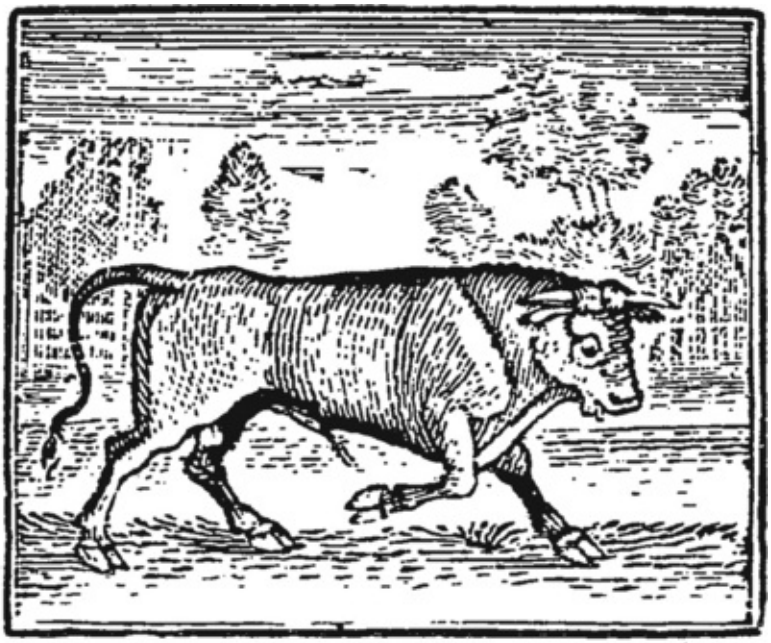
Mini Zebu

The **Mini Zebu** is a very old breed, originating in southern India, where they are referred to as *"nadudang"* or "small cattle." A naturally small breed, as opposed to those bred for small size by man, the Mini Zebus were originally imported to the U.S. in the 1920s, not for meat or dairy production, but to serve as an exhibit in several zoological parks.

Short horned, with humps and dewlaps similar—to but not as large as —the Brahman, Mini Zebus are approximately 42 inches in height or less, with cows weighing in at about 300 to 500 pounds and bulls approximately 400 to 600 pounds. The Mini Zebu is slow to mature but hardy, with a high disease resistance and a preference for heat over cold, although they can be found in northern climates. They can live up to 20 years or more.

In many mini breeds, there are strains which are referred to as "pure" or "foundation pure," which simply means that they can trace their lineage back to the original foundation animals. There are also different percentages of purity. So if you are looking for miniature cattle (or any cattle for that matter) it is important to do your homework. Talk with reputable breeders and ask questions to help you decide not only which animals are right for you, but to also be sure that you are getting what you want and expect.

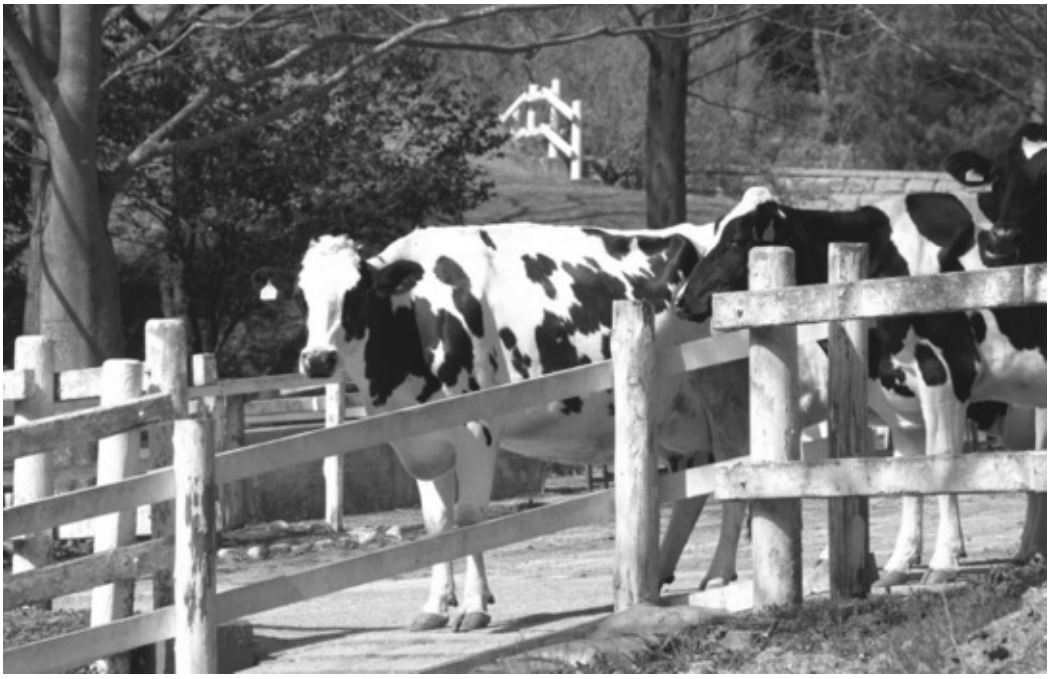




CHAPTER 3

BULLS AND COWS

As you are reading this book, it is likely that you are considering bringing cattle into your life, whether a family milk cow or a small herd of beef. And although there are some differences in keeping a dairy cow over a beef cow, the majority of the responsibilities of ownership for both types are the same. With that being said, there *is* the issue of gender to be considered; specifically, whether you are willing (and equipped) to take on the additional challenge of keeping bulls. But if you have never owned a cow before, and particularly if you have only limited experience with livestock in general, it is important to weigh the pros and cons when determining how many cattle to keep, how to keep them, and which genders to include.



Domesticated cattle have been adapted for a variety of needs and available resources, so make certain to find the best fit for you. Photo by Hideyuki Kamon under the Creative Commons Attribution License 2.0.

Keeping a Cow

Although housing will be covered in greater detail in Chapter 4, one of the main things that you will need to think about when first considering owning a cow is whether or not you have **the necessary space** to keep the number of head that you are considering. If you're looking to keep only a single dairy cow for the family, you obviously need less space than you would for a small herd of cattle, whether they be for dairy or beef. And, if you specifically want your animals to have a predominantly grass diet, you'll need to consider whether you have (or have access to) enough grazing area.

Yet these are not the only issues to keep in mind. Are cattle allowed in your area? At one time, you could find family milk cows in towns throughout the country, and even in the cities milk cows were not unheard of. Unfortunately, as more regulations appeared, the animals disappeared. Even if you live in a more rural area, you still need to check the pertinent zoning laws. If you are in what has been classified as an agricultural zone area, then normally there should no problem. But if

you are in a zoned residential area, then even a milk cow in the backyard or a couple heads of beef on your few acres may not be permissible. Keep in mind that, even if it isn't permissible, there may be room for change or revision in the restrictions! If you are shopping for a place to begin your small farm or homestead, make sure that you check the regulations on livestock (of any kind) before you sign the paperwork, to avoid being stuck with a property that you cannot properly use for your needs.

Other concerns to keep in mind include:

Time: Do you have the time to spend with cattle? Although beef cattle don't require the same amount of time that dairy cattle do, they still do need some time and attention. Although they may graze in good weather, if you're in an area that sees snow, you will need to go out and feed the animals. If you have dairy cows, you will need to set aside milking time, usually twice per day, at the same time each day.

Barns: Barns, or whatever structure you choose to house your animals, will need cleaning. Even if you have only one dairy cow, odds are you will most likely keep her in the barn at night or in inclement weather. And although beef cattle *can* stay out in harsher conditions, if you only have a few animals you may want to bring them in at night and/or during very inclement weather or hunting seasons.

Costs: Will you be able to afford a cow? Unless you are looking at a mini breed (which itself carries a steeper up-front cost) cattle—whether for dairy or beef—will need much more than a dairy or meat goat. If you are breeding, you will need to either purchase (and support) a bull, or pay for artificial insemination (AI). And if you are breeding, do have the means and space for the calves? If not, do you have a ready market for them?

Fencing: Fencing is a necessity in order to contain your cows, be they dairy or beef, but it can be expensive—especially if you are fencing in areas and acres. In addition, your fencing will need maintenance and occasional repair, which again costs time and money.

Veterinary needs: Along the way, you will eventually have veterinary

needs, which can be expensive. Although you will likely begin to pick up many of the basics of healthcare for your animal, there will still be times when a vet will need to be called. And, as you will soon find out, it will usually end up needing a weekend visit, or during a holiday/after hours, which may add on to the vet's fee.

Purchase costs: Can you afford the initial purchase price of the animals? As discussed in the last chapter, initial purchase price of your cattle will depend on the breed, age, gender, whether or not the animal is a proven milker (in the case of dairy animals) and even whether the individual animals are pedigreed. If you decide to purchase calves, you will need to either raise the animal until it reaches slaughtering age and weight (in the case of beef), or it becomes old enough to breed (in the case of dairy). When purchasing a young dairy calf, it could be up to two years before you will see her first milking. Of course, if you're lucky you may find someone looking for a good home for a milk cow, in which case you may end up getting a milker for a nominal fee, but this is the exception, not the rule.

Handling: Finally, who will handle the cattle? If you are a first timer or if you are having kids handling the animals, you will probably want to look at the more docile breeds. And if this is the case, make certain not to purchase your cattle sight unseen, as you will want to make sure of their temperament beforehand, and confirm that you can handle them.

A bull's large frame, long horns, and heavy stature requires special consideration before purchase. Photo by Time Green under the Creative Commons Attribution License 2.0.

Keeping a Bull

Although breeding will be covered in Chapter 7, should you decide to breed (or need to breed) your cows you will need to consider your three main options: **artificial insemination**, **stud service** or **owning a bull**. Artificial insemination and stud service will both be covered in Chapter 7, so for this chapter we will just look at the pros and cons of owning your own bull.

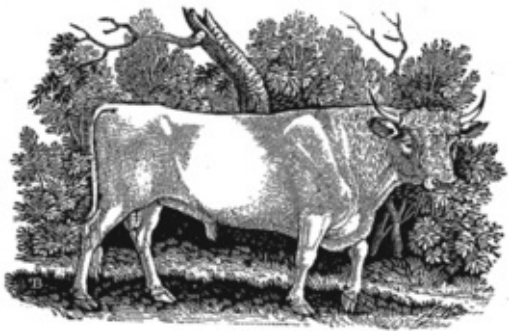
While the idea may sound nice at first, bulls can be tough to keep, especially on a small farm or homestead. **Bulls** are large, powerful animals and are not suitable for most novices. Many will have attitude. They can be unpredictable and you will need to use extreme caution around them. His care and maintenance aren't something you'll be able to let the kids do, as you can with cows and calves. Not only can bulls be a handful, they can also be quite dangerous as well. In addition, you will need some very strong fencing to keep your bull contained.

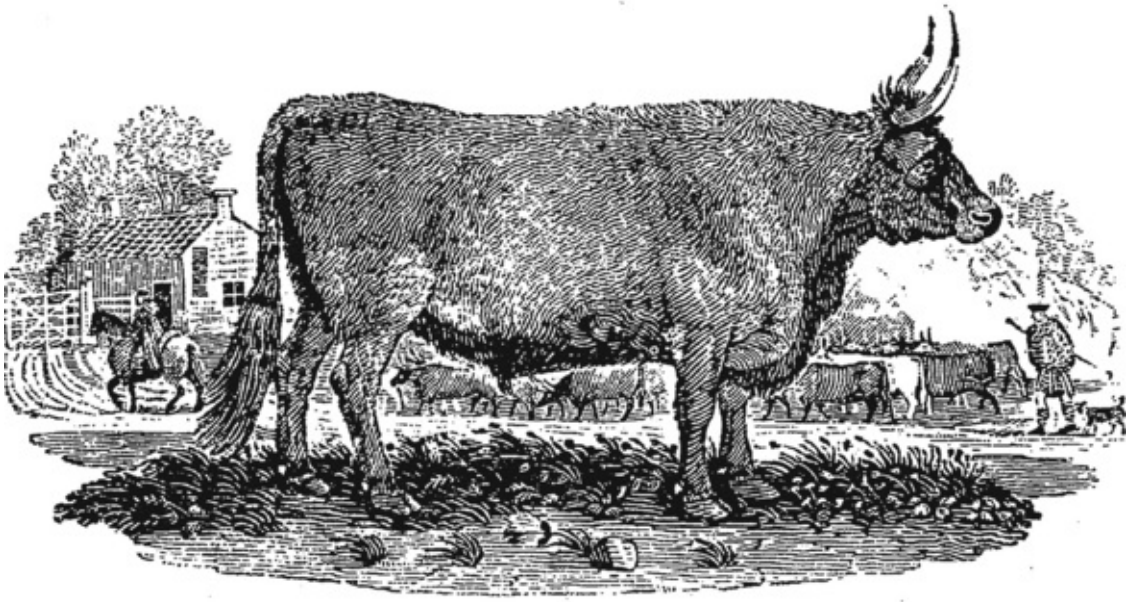
Next, how much space do you have? Until breeding time, bulls will need to be kept separate from the cows, both on the pasture and in the barn, which usually requires a separate residence. Some feel that this

can be a problem, or at least be more trouble than it is worth, especially if you only have a few females, in which case artificial insemination is a much more practical solution. Others feel that using a bull to breed their females is the only way to go, and is therefore worth all the hassle.

If you're thinking seriously about a bull you may want to think again. Unless you have a very rare breed and lots of space, there are a number of good artificial insemination services out there with excellent bull semen. You can have your animal bred at your farm or learn how to do it yourself. (If you choose to learn, learn from someone with experience, not from a book.) Most small farms choose the artificial insemination option due to space constraints, management needs, and the other possible problems of owning a bull.

This is only a short list of what you need to think about while considering adding cattle to your small farm or homestead. Depending on your individual situation, there may be additional things that have to be taken under consideration as well. Do your research, talk to experienced owners and then decide what is best for you.





CHAPTER 4

HOUSING

It should go without saying, but before you bring your animal(s) home, you will need to have **housing** prepared for them, as well as have **fencing** installed and ready for the new additions. Of course, shelter and fencing both will depend on whether you have beef or dairy cattle, and how many head you will be keeping. Although a shelter does not need to be fancy, it does need to be appropriate for the animal, as does the fencing. Remember that your fence needs to contain animals that can weigh up to 1500 pounds or more depending on breed and sex. And, even if your fencing is appropriate and well-maintained, it doesn't mean that your animals will never break through your fence. However, by providing proper fencing, you reduce your chances of having to oversee an unscheduled "cattle run."

Shelter

Beef

Providing shelter for beef cattle is really not that difficult, especially if you only have a few animals. Of course, if your property already has a small barn, whether it be an empty dairy barn or even an old pole barn, then you will most likely be all set; if not, then you will need to come up with some type of shelter, especially if you are in an area that experiences extreme winter weather.

While it is true that beef cattle can stay out in the elements most of the time, including in inclement weather (as long as they have some sort

of windbreak or shelter that they can get into), in cases of extreme weather, it would be wise to invest in some type of protective outbuilding. If you don't already have a barn or similar, there are a few good options that can be considered, to meet various budgets.

Using old buildings for your makeshift cow shed is perfectly feasible, provided it has sturdy walls and a solid roof. Photo by Alan Murray Rust under the Creative Commons Attribution License 2.0.

One of the simplest, most basic options available is an open sided, single slope **roof shed**. This is just a lean-to with a slope roof, a back wall and one end wall. It allows the cattle to get relief from the sun or wind, as well as a place to get out of the rain and a bit of shade.

Another design, similar to the single slope roof shed but offering a bit more protection, is the open sided **pole barn**. This is a roof with three sides (backside and both ends walled), with an open front.

A third option is a **hoop barn**. Much as it sounds, this is a barn with straight sides but a round, hoop type roof, looking like a semicircle connecting both walls. Hoop barns or hoop houses are usually steel framed and fabric covered to allow in natural light. For many, these are a less expensive but sturdy alternative to a traditional barn or shed, with considerably less maintenance required.

Providing an affordable yet dependable shelter from rain and mild weather, hoop houses are a good choice for temporary or seasonal housing. Photo by Vaarok under the Creative Commons Attribution License 2.0.

Dairy

Although dairy cattle may also spend a lot of their time outdoors, they are usually brought in at night, especially on the homestead or small farm. There are multiple building options, tailored for the various stages of a dairy cow's life. For the purposes of this book, we will focus on what the small homestead or farm, with only a family cow or a small herd of three or four head, would typically use.

As with beef cattle, if you already have a barn or a good-sized shed on your property, then you probably have your animal shelter needs taken care of. Even an empty single car garage could work for one milk cow. But if not, you will need to construct something for their shelter.

Like with beef, included in your immediate options are the open sided, single slope roof shed, as well as the hoop barn, both previously discussed in the beef housing options. However, there are three other forms of housing for dairy cattle, appropriate for use with one cow or 100. The three types of housing are tie stall, free stall or bedded pack, all of which may be executed or installed within most types of barns (with building size depending on how many animals you have).

Tie Stall: A **tie stall** is a set-up in which the cow is secured in a stall with a chain or rope attached to her collar, which is then attached to a

tie rail in front of her, much like you would tie a horse to a rail. There may or may not also be rails on either side of the cow. The tie stall can allow the farmer to interact with the cow a bit easier, and will help keep her in place. However, as the cow is tied to the tie bar, she must be able to walk in, lie down, stand up and exit the stall comfortably and safely, even while tied to the bar.

Free Stall: In the **free stall** arrangement, the cow is not restrained and is free to enter and exit the stall at any time. Like the tie stall, it needs to be large enough to fit the animal comfortably. Because there are no restraints, the cow is allowed to lie down more and can help to minimize the potential for injury from being tied.

Bedded Packed Barn: This is simply an open floor barn, with the floor being packed with bedding. The cows are loose in the building. Although the **bedded packed barn** is a low cost initial investment (in comparison to the other two methods) the yearly costs can be high due to the amount of bedding needed. Cleaning may also be more extensive, and take longer. This method also needs careful management; if not kept properly cleaned on a daily basis, you can end up with a wet mess of manure, which can contribute to potential health problems for the cows along the way.

When deciding on the housing for your dairy cow or cows, after selecting one of the stall types, there are a few things to keep in mind when designing the stalls themselves. As stated earlier, each stall should be built according to the size of your largest animal. This will allow comfort in all stalls no matter which cow ends up in which stall. Also, keep in mind a cow's movements: when a cow lies down, she will basically "drop" the last foot before the floor, so some cushion is needed to help prevent against injury. Subsequently, when the cow then gets back up onto her feet, she will lunge forward, her weight shifting to allow her hindquarters to come up easier as well. (So, for example, when building a tie stall, you will need to make sure the cow will not hit her head on the tie bar.) The partitions of the stalls need to allow for this sort of movement as well.

Bedding and Cushioning

Both the stalls and the bedded packed barn need some type of bedding or cushion. And while there is the traditional straw or sand set-up, there are also mats and mattresses which can provide a more tailored protection to your cattle.

Straw needs to be about 4 inches deep to provide proper cushioning and to help with cleanliness. However, straw is also expensive, as well as difficult and labor-intensive to maintain. **Sand** is a favorite of dairies. It is soft and comfortable for the cow. However, like with straw, there is a lot of handling involved, as well as the quandary of disposing of heavy, manure soaked sand.

Mats and mattresses are best for use with stalls. These provide the cushion that the cows need, are reusable and washable, and there are even methods of limiting the amount of cleaning needed. Ideally, mats and mattresses should still have some additional bedding on top (such as straw), which is mainly to help soak up urine and manure; as such, much less is needed.

Stanchions

Stanchions may be incorporated within the common stall setup. An upright steel mechanism often used for holding cows in place while milking, these basically take the place of the tie stall in functionality, and some say it is actually safer for the cow. Effectively a bike lock, the cow puts her head in and the two sides of the stanchion close (not tightly) on either side of her neck area, which holds her in place while allowing her to lay down, stand up, eat, and drink easily.

There are three styles of stanchions:

- Scissor
- Positive control
- Fully opening

The **scissor stanchion** has two halves that pivot on the bottom. The **positive control stanchion** firmly locks, and the **fully opening stanchion** has two halves that work like sliding doors.

There are pros and cons to each housing style, and it is up to the owner to research each and decide what will work best for their animals and their needs. On a final housing/shelter note, those considering keeping multiple dairy animals may want to consider building hutches if the calves are to be bottle-fed, so that the mothers may be milked. **Hutches** are simply small, sturdy plastic shelters that calves can live in and stay warm for (usually) up to eight weeks. They come in different sizes built to hold one or multiple animals. The hutches should be set up with adequate ventilation as well as attention paid to ease of feeding and cleaning. They should face south and sit on good drainage material like sand or gravel, with thick straw or wood shaving as bedding for comfort. There should also be fencing around the hutch, so that the calves may freely walk around outside.

Fencing

Just as important as housing or shelter is **fencing**. Fencing is what will keep your cows safe and contained, so it is imperative that it can hold and withstand a large, strong animal.

There are four kinds of fencing commonly used for cattle, whether beef or dairy:

Woven wire
High tensile
Electric
Barbed wire

Woven Wire

This style of fencing is structured as a grid type, broken up into squares. The fencing holds its shape through the use of wire knots at the point where the wires intersect each other. Usually sold by the roll, **woven**

wire fencing comes in a variety of heights, strengths and opening sizes. It is the best type for use with hutches.

Woven wire does have a few problems, however; most notably involving the openings within the fencing. Animals may catch their feet on the openings if they try to jump over. Heavy animals may stretch the fencing as they lean against it, even to the point of bringing the fence down. Small calves may get their heads caught if the openings are too large.

Some of the other drawbacks of woven wire include the high cost for rolls of the wire, especially for material high and heavy enough for use with cattle. Not only can it be very expensive, it can also be very time-consuming to install. Despite this, it is a safe way to go for the animals in the long run.

Should you choose to use woven wire for your cattle, you should use a high, heavy gauge wire (as cows can jump). You will also need support for the top of the fence. The fence posts need to be installed close enough together so that, should the cattle lean against it, the fence won't collapse. The closer together the fence posts, the stronger it makes the fence and the harder it will be for your cattle to try to push through. Granted, with a concerted effort the animals will still be able to overcome the fence; but the closer the posts, the more strength the fence will have to counteract your cattle's movements.

There are many options available when fencing in your cattle. For example, aluminum fencing provides an alternate for those living in damp climates. Photo by Grant Montgomery under the Creative Commons Attribution License 2.0.

High Tensile

As the name suggests, **high tensile fencing** has the ability to take a higher tension, which in turn allows you to put more space between the posts. The wire is made of hard, springy steel, and may be in the form of a simple single-strand, a woven wire or a barbed wire (not recommended—see "Barbed Wire"). The wire does not stretch or give easily, which is great if your animal decides to lean against the fence; however, this can cause injury if she decides to run into the fence at full speed. The stiffness of high tensile wire also makes it a very difficult wire to work with when constructing your fence.

Electric Fencing

Probably one of the most widely used fencing methods for large and small animals, **electric fencing** consists of posts or poles, fence wire, and a charger. An electric fence works through the use of short pulses of electricity. Should an animal touch the fence, she will receive a slight

shock that, although safe, will train them to avoid the fence. With minor differences in its setup, electric fencing may be used with beef or dairy cattle.

Electric fencing, although more expensive, provides a strong deterrent to animals on both sides of the fence. Photo by Christopher Thomas under the Creative Commons Attribution License 2.0.

When setting up an electric fence for beef cattle, you would use up to six strands of wire, with the number of wires you use depending on your specific situation and how much space you are putting between the posts. You would also use up to six strands for dairy cattle; however, keep in mind that they will be easier to contain than beef cattle, due mainly to the daily interaction many have with their caregivers.

The **charger** is what turns the ordinary wire fence into an electric fence.

There a few types to choose from:

Low Impedance: Good for heavily weighted areas, long fences and fences using poly wire or tape.

Solid-State: Good for light to moderate weight areas, short fence lengths, and the use of conventional wire.

Battery or Solar: A good choice for when electric fencing is needed in an area where no electricity is available.

There a few more things to keep in mind when building an electric fence (for either dairy or beef cattle). Make sure that the wires are properly spaced, so that the animals do not get their heads caught between the hot wires. If the fence is enclosing both cows and calves in

the same pasture, make sure that there are wires at the nose height of both animals. Heifers should also have lower, closer spacing in their fencing than do cows, due to their smaller size.

Finally, although most small homesteads and farms do not keep bulls, for those that do, there are a few differences you'll need to keep in mind when fencing in the aggressive bulls. This becomes especially necessary when there are cows nearby, which will increase the bulls' motivation to escape. The recommendation is to use five to six wires for bulls, with a minimum of 3,000–4,000 volts using a low impedance charger. Keep in mind, however that a bull that is especially aggressive will need a more intense shock to keep it contained.

Barbed Wire

Also known as barb wire or bobbed wire, **barbed wire** is composed of two steel wires twisted together, with either two or four pointy steel barbs attached. Simple to construct, barbed wire fences are designed with the wire attached to poles with fasteners. Usually, fortified strands are used with the bottom strand (approximately 12 inches from the ground) and the top strand (approximately 48 inches from the ground).

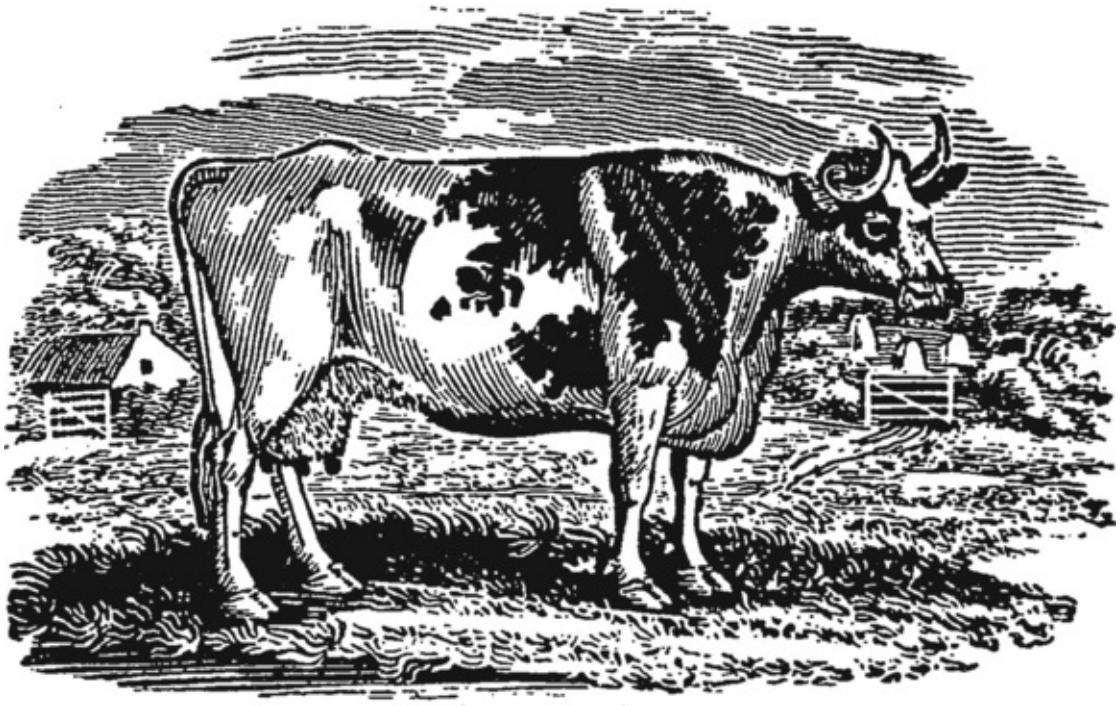
Previously, barbed wire was often the first choice in fencing, as it has the ability to keep cattle contained, in addition to being cheaper and easier to use than the other alternatives in use at the time. An example of one of these alternatives was Osage orange, a small thorny tree, which when planted close together can make a workable fence, due in particular to its thorns. However, barbed wire is usually no longer thought of as a first or even second choice in fencing, and some even feel that using barbed wire fences with livestock should be considered bad management. This is due to the fact that barbed wire can cause serious injury, disability or even (in certain circumstances) death, primarily due to infection.

Should an animal rub up against the fence, or try to jump it and land on the fence instead, it can rip the animal's hide, entangle its legs and/or tear its udders, among other possible injuries, any of which can be quite serious.

What it comes down to is that the type of fencing you choose should be

decided by your needs, what you can afford, and what will provide the most safety for your animals.

Barbed wire and wooden fencing both provide legitimate options for marking off your cattle's territory. Photo by Dana Le under the Creative Commons Attribution License 2.0.



CHAPTER 5

FEEDING

A good diet, along with good management, is what keeps your animals healthy, happy and sound. But determining the nutritional needs of cattle depends on what sort of cattle you have. Beef cattle will have some different needs from dairy cattle. If you decide to show your cattle, those for show will have even more specific needs. Adult cattle will have different needs from calves. This chapter will touch on the basics in feeding, to help you avoid the simple mistakes. Once you have decided the direction you wish to go with your cattle, you can research exactly what their particular feed needs will be.

Most cattle diets include some form of forage, be it grasses, legumes or silage, which serves as the majority of their diet. In fact, grass and pasture feeding (for both beef and dairy cattle) has become the preferred method for small farms, homesteads and consumers. Grass-fed cattle tend to be leaner, and their meat is lower in fat and calories. Grass-fed beef contains between 2–4 times more omega-3, and is higher in vitamin E.

However, grass-fed/pastured cattle will need supplemental minerals added to their diets to maintain their health. This is especially true during a cow's breeding season and during times of peak production, with the most critical time being 60 to 90 days before and after calving. This is due to the increased physical demands on the cow, be they beef or dairy, whether due to fattening during late development or the required additional nutrition for peak milk production.

Cattle may receive their supplemental nutrition in either feed or

mineral form, again depending on needs. The feed provides the necessary proteins, fiber, carbohydrates, vitamins and minerals that the animal needs.

Different Feeds

Some feeds are designed to be a primary food source, while some are only for supplemental use. There are three forms of feed:

Pelletized Feed: The ingredients are milled into the form of pellets.

Sweet Feed: Fresh grains with pellets in molasses (animals usually love this!)

Block Feed: Ingredients are milled, and then formed into blocks.

Cattle can also benefit from **supplemental minerals**, either in loose form (where the minerals may be put into a separate feeder or sprinkled into their food) or in the form of blocks, which the animals can lick. A mineral **salt block** is a common way to give cattle both necessary minerals and necessary salt. In fact, all cattle should have a salt block or lick available to them at all times.

Although many cattle are grass/pasture fed today, there are still those who are corn fed/grain fed finished. Usually a method used in feed lots, the cattle are given hay, but are fattened on corn, soy and other feed needs for several months before slaughter. The reason for this is that corn is higher in starch and high in energy, meaning less time is needed to fatten the beef, which results in an increased meat yield from dairy animals.

Another very important element in feed management is water. Cattle should have free access to water, as their water intake influences their feed intake. As in, if their water intake is reduced, their feed intake will also be reduced. Water consumption will also increase in higher temperatures and during the last four months of a cow's pregnancy, whether dairy or beef. It should be noted that water intake for cattle

averages approximately 1 gallon of water per 100 pounds of live weight, per day.

A more efficient way of feeding a large number of cattle quickly, setups like this are used on feed lots throughout the country. Photo by net_efekt under the Creative Commons Attribution License 2.0.

As a side note, your cattle's diet can affect the flavor of their milk or meat. In fact, in Japan, France and Belgium it is believed that cattle fed on wine or beer will improve the overall taste of the meat.

Should you find yourself temporarily short on hay or alfalfa, you may substitute approximately 1 pound of grain or feed for 2 pounds of alfalfa or 3 pounds of hay. However, if forage is the main component of your animals' diet, grain feeding should not exceed more than 0.4% of the animals' live body weight.

When feeding your cattle hay, whether in square or round bale form, it is recommended to use hay feeders.

Hay feeders can be found in a variety of types:

Hay Racks: Made of wood or metal, hay racks keep loose hay up off the ground and in easy reach of the animal. They can also be hung on the wall of a barn or stall.

Stall Feeder: Made of plastic, fabric or wood, stall feeders allow cattle to be fed in their stall, keeping hay or feed up off the floor.

Ideal for larger groups of cattle, but available in a variety of sizes, feeding troughs are one of most common methods for feeding your cattle. Photo by United Soybean Board under the Creative Commons Attribution License 2.0.

Rack and Trough: This style holds both hay and grain.

Round Bale Feeders: Usually metal or plastic, these feeders will hold full, round hay bales. A skirt added to the bottom of the feeder helps cut down on waste, and helps to prevent hay from spilling out onto the ground.

Creep Feeders: These are feeders that are designed to allow only the calves to feed by keeping the adult animals out. You can also design an area for creep feeding.

Remember that good feed management includes ensuring easy access to clean water, feeding your animals on a schedule and maintaining a set quality of feed.

CHAPTER 6

DISEASES AND OTHER AILMENTS

No matter how well managed and cared for, at some point your animals will have a confrontation with an ailment or disease. Some may be nothing more than a nuisance, while others may represent a life-threatening problem. Some you will eventually learn how to treat on your own, while others will merit an emergency call to the vet.

In this chapter, we will look at a few of the most common diseases and ailments that you and your cattle may find yourself dealing with along the way. Keep in mind that this is only a sampling of problems you may face; if you observe any unusual symptoms in your animals, make sure to take the proper steps.

Diseases

Johne's Disease

Also known as paratuberculosis, **Johne's Disease** is an infectious bacterial disease, primarily affecting the intestinal tract of the animal. It affects ruminants and is found in a number of ruminant species. Although Johne's Disease is more of a risk to dairy herds, beef cattle (and especially confined beef herds) are also at risk. Johne's Disease spreads through bacteria in manure, can be passed to calves through

colostrum and milk if the infected cow is in a later stage of the disease (which may not yet be detectable), and through the introduction of an infected animal into the herd (which is the most common method by which the disease spreads).

The symptoms of Johne's are few. In fact, it is a slow, progressive disease where infected animals may not show signs of infection for years. It can literally have penetrated into your herd and be already spreading before you even realize your animals are in trouble.

When your animal finally does begin to show symptoms, they are as follows:

- Diarrhea that lasts
- Unexplained weight loss despite a good appetite

Some animals may appear weak, while others may only have chronic diarrhea. The animal usually will not exhibit any signs of fever. Although there seems to be no cure for Johne's to date, there are preventative measures that can be taken, such as good management, maintaining a closed herd (meaning all replacement animals come from the offspring of your own herd) or purchasing your animals only from low risk or risk-free herds.

Bovine Spongiform Encephalopathy (Mad Cow Disease)

Bovine spongiform encephalopathy, otherwise known as BSE or Mad Cow Disease, is a fatal neurodegenerative disease which causes spongy degeneration in the brain and spinal cord. Thought to be caused by cattle being fed meat and bone meal (in other words, cattle, which are naturally herbivorous, being fed cattle), BSE is non-breed specific.

The incubation period for BSE can be anywhere from 2½ to 8 years, usually affecting cattle that are 4 to 5 years old. There are no signs or symptoms of the disease during the incubation period. However, when they *do* begin to show, symptoms may include increased aggression, developing ataxia (a lack of coordination of voluntary muscle movement), a drop in milk production, and becoming anorexic and lethargic.

Although it is not totally understood, it is thought that the infection may be from a transmissible agent called a prion, which is thought to be a modified form of a normal protein, the prion protein. Studies are now showing the possibility that BSE may be able to be detected in the blood before symptoms appear. Attempts to bring BSE under control have been made by bans being placed prohibiting feeding cattle meat and bone meal.

It is possible for BSE to be passed to humans through the consumption of contaminated meat; however, there have been only a few identified cases of cattle with the disease in the U.S.

Mastitis

Note: The term "quarter" or "quarters" refers to the division of the udder into four independently functioning sections—or quarters—of the gland.

Mastitis may affect animals or even humans. It is basically the inflammation of the mammary gland—in this case the udder—due to a bacterial infection stemming from damage to the teat. There are different forms of mastitis, which include the following:

Acute Toxic Mastitis: A potentially life-threatening illness, acute toxic mastitis is caused by bacteria that enter the udder, producing toxins. Risk factors include but are not limited to: damage to the teat, shape of the teat, udder asymmetry, breed, age, vitamin and mineral deficiencies and number of lactations. The bacteria generally come from the housing environment the animal lives in.

More than half of cases occur during the first four days to the end of the first month of calving. Symptoms include high temperature, a quarter that is hard but tender, and a watery, yellow discharge (sometimes reddish in color) that can even have clots. If it is a bad case, the cow may go off her feet and go down. Other signs may be depression, rapid drop in milk production, scours (diarrhea) and even collapse.

There is the possibility of recovery from acute toxic mastitis; however, treatment needs to be immediate, with accompanying veterinary attention. Your cow will also have a better chance of recovery if she is

still standing. Treatment will include stripping the infected quarter to remove the toxin (basically “milking” the toxin out) and the use of fluids, antibiotics and anti-inflammatories.

Gangrenous Mastitis: Although rare, gangrenous mastitis has a high mortality rate. It is environmental, caused by clostridia bacteria found in soil. Although it is usually found in summertime pastures, confined cattle may be at risk year-round.

The first sign of gangrenous mastitis can be a low-grade fever and slightly thicker milk which may then turn a port wine color, with a very bad smell. The affected teat or teats will be blue and cold with the affected quarter or quarters being swollen. No milk will come from the affected teat when stripped, just gassy air. If the infected cow is older and down on the ground, it is likely that you will lose her. If she is younger and still on her feet, there is a good chance of saving her. Antibiotics are used in the attempt to help the animal recover.

If you do save the cow, the affected quarter or quarters of the udder will slough, then dry up and shrink. Although some will claim that a cow that survives but loses part of her udder may never be milked again, many small farmers or family cow homesteaders state that they can still milk the remaining teats once the cow has healed and the dried part of the udder has fallen off. It has also been stated that a partial mastectomy may be effective in saving the animal.

Although it is a bacterium that causes this form of mastitis, it may also be spread through the use of a milking machine by using it on an unaffected cow after having using it on an infected one.

No matter what type of mastitis you are dealing with, even cows that recover may have recurring bouts.

Scours

Also known as calf scours, **scours** is diarrhea as a result of virus or infection. The diarrhea may be white, yellow, gray or bloodstained and foul. However, scours is *not* a disease itself; it is a *symptom*.

If the calf is up and moving around, and their tail is up, treatment may or may not be necessary. But if the calf is listless or lethargic, not playing with the others and/or losing condition, and dehydration is

present, veterinary treatment will certainly be necessary, with the remedy usually including electrolytes and antibiotics.

Once scours has been recognized in a calf, he or she should be kept separate from the other animals. The calf should be fed and kept warm. Once the calf has gotten well again, bedding must be carefully disposed of in the stall, with stall walls and buckets disinfected.

Although death may occur from scours, it is usually due to, among a few other things: dehydration, loss of electrolytes or changes in body chemistry.

On a final note, as scours seems to be more prevalent in hand reared calves (although nursing calves may contract it as well, though not as often), it is thought that many scours cases may be due to lack of colostrum intake. This is why, even if you plan to hand rear your calves, you should allow the calf to nurse from the cow for a few days to allow access to the colostrum if at all possible.

Brucellosis (Bang's Disease)

Most states are **Brucellosis** free, so it is unnecessary to go into any great detail. However, it is a reproductive disease that causes abortions and sterility.

Leptospirosis

Another reproductive disease, **leptospirosis** causes repeat breeders to suffer low-grade uterine infections, abortions and mastitis. Closely confined cattle are particularly susceptible. Preventative methods include vaccination, draining any stagnant water from the housing areas, and eliminating rodents from barns or sheds where the cattle rest.

Vibriosis

A venereal disease spread from bull to cow through breeding, **vibriosis** causes infertility. May be controlled through vaccination; AI may also limit the spread of the disease.

Ailments

Lameness

A major welfare issue, **lameness** is a clinical sign of some underlying issue, which can be any one of a number of possible causes. A painful ailment, it can have an effect on yield, fertility and longevity. Most lameness in cattle is in the foot, with most of that being in the hind foot.

There can be a number of reasons an animal would become lame; however, common causes include: dirty and wet flooring, breed type, animals being forced to stand too long on hard surfaces, problems with foot trimming, poor nutrition and hardiness of the hooves, to name just a few.

Lameness can be grouped into two categories: **infectious** (which include steelworks, digital/inter-digital dermatitis and foot rot) and **noninfectious** (including laminitis, white line disease, sole ulcers, joints and upper leg issues, or deformities). While treatment for lameness can include antibiotics and foot baths, a measure of prevention may also be taken, including seeing to proper foot trimming, improved nutrition, and keeping the animals comfortable and well provided with proper vitamins and minerals.

Infertility

Infertility is when a female is not sterile but does not exhibit normal fertility. She may need to be bred a number of times before one of the attempts results in a successful pregnancy. Causes of infertility may include malnutrition, congenital defects, bad or incorrect management, hormonal imbalance, miscalculating heat cycles or receipt of damaged semen.

Although not all infertility may be treatable, treatment may include purchasing semen (for artificial insemination) from reputable sources, reevaluating heat detection methods, reviewing proper insemination, specific treatments to address uterine infection and anemia, avoiding overfeeding of grain, avoiding moldy forage and providing fresh forage/pasture.

This is only a sampling of diseases and ailments that you may run into with your herd or with the family cow. As a new cattle owner, anytime you question something regarding the health of your animals, contact your vet or, at the very least, contact someone with experience in raising

cattle. Eventually you may learn to diagnose and treat a few problems; until then, consult the professionals on anything.

CHAPTER 7

BREEDING

If you are only raising a few beef cattle every few years for yourself, then you are most likely purchasing calves from area farmers or at livestock auctions. However, if you want to raise your own beef from birth, you will need to deal with issues regarding breeding. If you keep a family milk cow in order to have your daily dose of fresh milk, you will also need to deal with breeding to ensure a continued milk supply. In this chapter we will discuss cattle breeding, including the option of using natural breeding or artificial insemination (AI).

When a heifer or cow is ready to breed, she goes into heat. This happens an average of once every 21 days (more or less) starting at anywhere from 9 to 22 months of age. However, the first breeding ideally should be around the 15 month mark at the earliest. This allows the cow to grow more, increase the size of her pelvic area and be in better condition for her first gestation period. If bred too young, a difficult birth can result, often requiring a C-section. As a cow or heifer can only successfully breed during heat, you need to have already chosen your breeding method, be it naturally or through artificial insemination. As a side note, if you have a single family cow, you will need to use caution to ensure that she does not try to mount *you* during her heat periods.

A mother and her two calves. Photo by Stanze under the Creative Commons Attribution License 2.0.

Natural Breeding

Much as it sounds, **natural breeding** involves simply putting a bull in with the cows and heifers or the cows and heifers in with the bull. When selecting a bull, you will either use a male of the same breed as the cow; or, if you are looking to create crossbreeds, you may use one from another breed. If you are purchasing a bull, he should be purchased at least a few weeks before breeding time. You should also take time to test the semen before you make your purchase.

Conformation is important when purchasing a bull. If you are looking to build a small herd, the bull should be selected for his ability to improve the herd. The bull should also be selected for calving ease, meaning a bull that can sire small calves for easier, unassisted births.

When selecting your bull, you should also consider the age of your cows in heat. You should breed young bulls to young heifers to reduce the chance of injury when mounting, as well as to increase the chance of a small calf for the first time heifer. Bulls should be kept with the females during the entire breeding season, usually 45 to 60 days. As mentioned earlier, bulls may get aggressive during breeding season, even to the point of breaking out of their fencing. As a result, caution must be taken if you are using the natural breeding method.

Artificial Insemination

Artificial insemination, explained in a very basic form, is the selective, manual insertion of bull semen into a fertile cow. After selection, the

semen is delivered to the farm contained in a straw suspended in liquid nitrogen. The straw is put into an artificial insemination "gun" and deposited into the cow's or heifer's uterus. There is more to this process, but this is the general idea of artificial insemination in short form. You may have a professional perform the insemination for you, or you may learn to do it yourself.

While it is more commonly used with dairy cattle, the practice is also growing in the beef industry.

With artificial insemination you have a catalog full of excellent bulls to choose from at different price ranges. You should select your bull just like you would for natural breeding. The obvious advantage here is, with artificial insemination you will not have the cost or care of the actual bull, but just the bull semen instead.

Whether you select natural breeding or artificial insemination, gestation is approximately 285 days. You may then re-breed 45 days after the birth of the calf, although some do choose to wait longer.

Breeding is done either to build the herd, produce milk or both. As you do have options, you need to carefully consider what is best for your particular situation, as well as what is best for your animals.

Breeding Problems

Reproduction problems can be a major cause of your animals developing health problems. Breeding problems may be genetic, environmental or have to do with the breeding itself. For example, perhaps the artificial insemination doesn't take (the procedure itself has approximately a 70% success rate). Or, if you are using a bull, perhaps the bull has not been used often enough; or perhaps he has been overused. Both will affect sterility, and while this may be corrected, it can take a little bit of time.

Cows or heifers may not breed due to **poor nutrition** or **lack of condition**, the two most common causes of breeding problems in females. The environment can be a factor as well; for example, heat

stress can affect the viability of the embryo. It can also affect sperm quality of the bull.

Disease may cause abortion, embryonic death, weak or stillborn calves or calves dying soon after birth. Genetics can cause fertility differences in different breeds. Finally, mineral and vitamins deficiencies may also play a role in breeding problems. This includes deficiencies in vitamin E, cobalt, copper or iodine.

It may also be worth mentioning again that some have found they need not breed the family milk cow every year, as they can continue to get plenty of milk from her (even after her peak time) so long as they keep on milking. However, she should still be bred about every 2 to 3 years; otherwise it will become more difficult for her to breed successfully in the future.

CHAPTER 8

CALVES

It goes without saying that, if all happens as it should, the breeding and gestation period for your cows will end with the birth of a calf. The resulting calves may be used to expand the herd, serve as a replacement for another animal, continue to be raised for beef, or sold to another farm or sold at auction.

There are a few differences in how dairy calves and beef calves are handled, mainly due to what each is bred for. Let us take a brief look at dairy and beef calves, keeping in mind that we are only highlighting the rearing process. You will need to do further research for your particular situation and breed, should you pursue calving or keeping a calf.

Preparing for the Birth

The stages of birth for the cow (and calf) are:

Dilation: 1–24 hours in duration, with the usual range being somewhere between 2–6 hours. During this time, the cow may refuse to drink; you will also begin to see discharge.

Contractions: The amniotic sac appears at the vulva and the calf enters the canal. Birth should happen within 2 hours.

Placenta delivered (usually within 8 hours of birth).

Issues During Calving

Cows will usually go through calving without any issues. Often cows will choose to calf out in the pasture, or else during the night or early in the morning in the barn, where you will be greeted by a new little face when you go down to do morning chores. However, cows do occasionally run into birthing problems or difficulties, otherwise known as dystocia: the calf may be too large; its head may be turned; its legs can bend or get caught on the pelvic brim; all of which will not allow the calf to pass through the canal.

Only 2–3% of births will experience any severe problems. However, for the new cow owner, if you are a bit nervous about the first calving it would be advantageous to keep the cow in the barn when you know she is close to starting the birthing process. If at all possible, have an experienced person with you to guide you through the process of what is happening to both cow and calf, and what you need to be looking for as far as any problems go. Should you decide to be at the birthing on your own, know that if birthing takes more than 2–3 hours after contractions begin, a vet should be called as the calf may be having problems moving down the canal. The calf may need to be turned or straightened out; it may even be necessary to perform a c-section on the cow. Sometimes the calf may need to be pulled out, and if not done correctly, you could break the calf's legs or injure the cow. Therefore, an inexperienced owner should have experienced assistance on hand in case their animal develops complications.

The most common problem in calving is the calf being too large; note that this issue can usually be avoided simply by choosing your breeding stock wisely, relying on the use of heavy heifers and easy calving bulls.

Bringing up Baby

Heifers and cows must be bred in order to both begin and continue peak lactation. Once the calf is born, be it male or female, you have a few options to consider regarding how long to let them **nurse**. You can allow them to nurse for a few weeks before hand feeding; you can begin hand feeding after only a few days (just enough to allow the calf access to the colostrum) so that you can milk the cow; or, you can allow them to nurse as long as they choose, and only milk for yourself once per day, until the calf is ready to wean.

Hopefully, you already have thought about what to do with your calf after he or she has finished weaning. Having a plan in place for your calf prior to their being born will be invaluable to you, and best for the animal going forward. While females are usually either kept or sold to be future milkers, little males are usually raised for beef, or sometimes sold or kept as a breeding bull. These are decisions you will need to make by the time the calf has finished weaning. But there is still a ways to go between birth and weaning, and even more after that should you decide to keep your calf, so you will have the time necessary to make any preparations.

First and foremost: the growth and good development of the calf, whether dairy or beef, relies on a good nutrition and health management program. When the calf is born, you will need to make sure that the **throat and nasal passages are clear of mucus**. If they are not, you'll need to clear them with your fingers. Usually the cow will clean the calf themselves, including licking them dry. However, if for any reason the mother does not, you'll need to dry the calf to prevent a chill which, in turn, could leave your calf open to disease.

One of the first interactions a calf will have with its mother, it is best to allow this act of bonding, unless there is a pressing concern with the calf's health. Photo by Florian Straub under the Creative Commons Attribution License 2.0.

Nursing

Ideally, the calf should begin nursing (to receive the colostrum from the mother) within 15 minutes of birth. If it doesn't happen that quickly, don't panic; however, you should keep in mind that the longer it takes for the calf to get that all-important colostrum, the more the calf loses the ability to absorb the necessary immunoglobulin it contains, which is what helps the calf develop its disease resistance. If by chance the calf does not nurse or the mother refuses the calf, you will need to use alternative means to get the colostrum into the calf, whether by milking the cow yourself (for that first feeding) or using an artificial replacement. Although using the colostrum that comes directly from the cow is best, whichever way you decide, colostrum is very important to calf health.

The preferred nutritional plan for a dairy calf is to be able to nurse directly from the mother. However, this is not always possible (for any number of reasons) and the calf may need to be **hand-reared** (bottle-fed), in which case a good, quality milk replacement, with digestible proteins, should be used.

A preferred milk replacement will have milk protein sources such as dried whey, casein, dried skin milk, or similar. Milk proteins may also be replaced by other proteins and sources such as soy and egg, but this is not recommended because it could cause lower growth rates in calves less than three weeks of age (as they cannot digest non-milk proteins well).

Dairy Calves

As female dairy calves are what the small farmer or homesteader is most likely to be raising, we will focus primarily on their upbringing. Dairy calves go through various stages, the first of which is the newborn to weaning age, with weaning being at approximately 7 weeks or later. Some farms with excellent management and high quality foods have been able to successfully wean earlier than seven weeks, even as early as approximately 4 weeks. However, this takes careful research and an attention to proper nutrition, which will allow the room for them to develop properly and prepare for an early diet change. At 4 to 7 days of age, a starter feed should also be provided to the calves. This feed should not be free choice; rather it should be measured.

Starter feeds or pellets are usually 16 to 18 percent protein. Starter feed is composed of rolled grain, supplemental pellets and molasses, while the pellets are made with grains, vitamins, minerals and minimal additives. By day seven, good, tender chopped hay may be added to the diet.

At 2 to 6 months, the calf should be weaned (given no more milk or replacer) and the forage stage should begin. This should include mold-free hay and, if available, high quality, freshest silage. At this time, the calf should also be fed to meet a growth rate of approximately 1.75 pounds per day. A rate higher or lower could affect the milk production in her first lactation period when she becomes a cow.

The weaning to six month stage is also the growing phase for the calf. At the end of this phase, the new heifer should weigh in at 270 to 400 pounds (depending on breed), with the 2–10 month age being her critical growth span.

At 6 to 15 months, the heifer enters the breeding stage, at the end of which she should be ready to breed. A well-fed and well managed heifer,

who has been successfully seen throughout her various growth phases, should be able to calve or freshen at 24 months with minimal difficulty. However, some owners may choose to wait a bit longer before breeding.

Beef Calves

Because the backyard farmer will usually purchase a beef calf or two to raise, instead of breeding them themselves, we will start our discussion after point-of-purchase. It should be noted that if you are not sure what to look for with your first beef calf purchase, be prepared with questions for the farmer; or, better yet, take an experienced person with you to help guide you through your first purchase, especially if you are making your first purchase through a livestock auction.

There is actually less to do when raising an animal destined for beef use. Beef calves will wean at 6 to 10 months of age; however, should you find yourself in possession of an orphan calf, as with the dairy calf you will need to make sure that they receive their colostrum and a proper milk replacement. At the weaned age, the calf should weigh between 450 and 600 pounds. Up until weaning concludes, unless the calf is bottle-fed, the calf will live off of the mother's milk and grazing.

The stocker phase kicks in next, at around 12 to 16 months of age. This is also stage at which calves should begin to forage.

At 18 to 22 months, the animal should be at the 1200–1400 pound mark, and is considered to be ready for processing. This may be done on-farm (if done properly) or at an area slaughterhouse that you are comfortable with. See Chapter 11 for more information regarding slaughter and beef cattle.

Whether you are raising dairy calves or beef calves, there are two other steps that are taken when calves are very young: castration for the males and dehorning (should you choose to do so).

Castration

Castration is the removal of the testes by surgical or nonsurgical means. It should only be done by properly trained people or veterinarians. Done only on the male calf, castration should be performed on those males that you are sure will not be used for breeding; remember, the process is

not reversible. Although this should be done when the calf is small and sexually immature to limit stress, many breeding operations choose to wait slightly longer when looking for bulls, until they can get a good idea of the calf's prospects as a potential breeder. However, if castration is done too late and the calf is over 500 pounds, there can be more bleeding and a higher level of stress for the animal. Normally the backyard farmer will not need to deal with castration; the only instance would be if your dairy cow gave birth to a male calf. Ideally, beef calf should already be castrated before purchase.

There are a few methods of castration. Three of those methods are:

Surgical: In which the testicles are removed surgically.

Elastration: In plain terms, a rubber band is placed around the neck of the scrotum and is used to remove the sexual organs. During the process, the band is placed on an instrument which stretches it to allow it to fit around the scrotum. The band cuts off the blood supply which causes the scrotum and testicles to fall off, usually within a few weeks.

Emasculatome: This method is used for older calves. In a nutshell, the blood supply and spermatic cords are crushed, rendering the testicle nonfunctional. This needs to be done carefully by someone who knows what they are doing, so additional damage is not done accidentally.

Season wise, the best time to castrate is in the spring or fall, when you have less of a fly or maggot problem, making it easier to keep the wound clean. If you're on the fence about castration, keep in mind that a castrated male will have a better disposition and will be easier to handle. Should you decide to sell the animal, a castrated animal commands a better price than an intact one, unless it is being sold as breeding stock.

Dehorning and Disbudding

If a calf is not born polled, chances are you will dehorn it, be they dairy or beef. **Dehorning** refers to the removal of the animal's horns, or else refers to halting the horns' growth. This is also called **disbudding** when performed on a calf, as you are removing the calf's horn buds.

Although more people today are opting not to dehorn, it is still a common practice, due to the fact that horned animals can pose a risk to

their handlers, other animals and even themselves. There are pros and cons to disbudding/dehorning. The argument for dehorning includes the reduction of risk of handler injury, not needing special feeding equipment to accommodate the horns, and avoiding issues that result when horns break, which can create a whole new set of problems if not treated properly. Horns can also get stuck in fences or thick, dense bush. The argument for keeping the horns include their providing a line of defense against predators, keeping in line with breed standards (needed for some breeds during shows or registration) and the expense of dehorning itself. Also, if you plan on using the animals for oxen, most oxen yokes (collars) require that the animal has horns. In the end, it is the owner's preference, based on how the animal is going to be kept and used.

Caustic paste or **dehorning paste** is a paste spread on the horn bud and base, killing the growth ring. When healed, the horn falls off. Although this is considered the best method to use for a young calf due to it being the least invasive and least painful method, there is a danger of the paste running down the face and burning the animal's eyes and face. For this reason, it is a procedure that must be done properly and carefully. Should you choose to use this method, you will need to exercise caution.

An adult animal that still has his or her horns will usually have only the horn tips removed. This is called **horn tipping**. The process is bloodless and, as there are no nerve endings in the tips, there is less stress for the animal during removal. Although horn tipping will not eliminate all injury, it will prevent puncture wounds and eye loss.

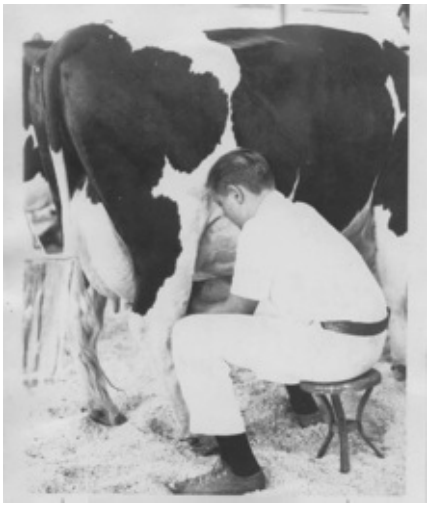
It should be noted that any form of dehorning or disbudding, if not done properly, could result in horns still coming in, but in a deformed manner; it could also cause other injury to the animal.

CHAPTER 9

MILKING

Out of all the aspects of keeping dairy cows, learning to properly milk your animals is the most important. The milk comes from the cow's **udder**, made up of two pairs of mammary glands with four **teats** from which the milk is extracted. When milking, it is important to establish a routine with your cows, and milk them at around the same times each day. If you have decided to let the calves nurse (which means you are most likely milking once per day) you will need to pick either a morning or evening time and stick to it. If you personally are using all the milk, then it is usually two times per day, approximately 12 hours apart. Again, you will need to pick your times and stick to them.

You will eventually find that, once the routine is established, your cows will be waiting for you at milking time. Do not forget that, unless your cow is going through her first few months of "dry time" before calving, you will need to have someone milk your cows for you if you are planning to go away for any length of time—even overnight. Not being milked is painful and uncomfortable for the cow.



Cows must be milked daily, on a regular schedule; make sure that this schedule is kept, to avoid causing your cows discomfort.

Milking cows, whether it is a single family cow or a small herd, also requires certain pieces of equipment. Your equipment needs will vary, depending on your situation, but there are at least some basic equipment necessities that any cattle farmer will require.

Let us briefly look at the equipment that you will be likely to use for milking.

Milking Machine

There are a few ways of extracting milk from a cow: by hand, by simple machine, or through mechanical means. This last option, represented by the robotic milking parlors used by the large dairies, is unlikely to be used by those with single cows or small herds. Milking automatically through the use of milking machines may be used by both the small herd owner and the single cow owner, while milking by hand is now primarily used by single cow owners or a farm that only has a couple of animals.

Attaching to the teats and providing the correct level of suction, milking machines are especially useful for those with more than a few head of cattle. Photo by Cushing Memorial Library and Archives under the Creative Commons Attribution License 2.0.

The small or backyard farm will most likely use a portable milking machine, if not milking by hand. **Milking machines** are designed for the rapid, efficient and safe removal of the milk with no damage to the teat or glands and only minimal mastitis risk. The parts of the milking machine include teat cups, which fit over the cows teats and are held on by a vacuum while removing the milk. Milking machines designed for cows have four teat cups, one for each teat. The claw is where the milk will pool after it is removed from the teat. The vacuum tubes provide the suction that attaches the teat cups, and the milk tubes remove the milk from the claw. The milk then goes into an attached bucket. There will also be a small motor attached to the milking machine to operate it.

One question many have is, “Can we milk a beef cow?” The answer is yes and no. In rare cases, a beef calf may need to be hand raised, due to the fact that it was rejected by its mother or else just decided not to nurse. In these cases, yes—as far as the ability to milk and provide the colostrum the calf needs. However, you cannot milk a beef cow like you can milk a dairy cow. The beef cow does not produce enough milk and is not built for milking. If you want to have a beef cow that you can still milk, then a dual-purpose breed should be considered.

Milking by Hand

Although most people will elect to milk their cows with milking machines now (using the portable single-cow or double-cow milking

machines discussed earlier), primarily due to the time it can take to milk out a cow by hand, some may still choose to try hand milking, or are at least interested in learning (in case something happens where the milking machine cannot be used). Remember that no matter what, a cow still needs her daily milking, regardless of issues with your milking machine.

Milking by hand can be fun, but it can also be dangerous—especially when dealing with an ornery animal. When you are milking, you are square in the range of a cow's hind legs, where a kick in the ribs or head —while not the norm, especially with a good, gentle cow—is not out of the realm of possibility. Therefore, it is recommended that you get a few hands-on lessons in milking from someone with experience before you try it on your own. If this is not possible, there are a number of "how-to" videos online for milking a cow that allow you to watch a milking and see the techniques necessary for success.

The Milking Protocol

Regardless, in order to make sure the milking process is as safe and comfortable as possible—for both you *and* the cow—there is a protocol that should be followed when milking:

The first thing that you need to do is to make sure that the cow is well-secured in a clean place without stress. While you may occasionally have a cow that has been trained to hand-milk and will just stand there and let you proceed, most of the time, she will need to either be haltered to a secure post or fence; or, if you have stanchions, she can be left in that and milked. (She might enjoy a little treat while milking as well; maybe a little hay or grain!) You will need to decide which side will be the best side for you to milk from, right or left, whichever is easiest for the person milking. At this point, you can also put a *meticulously* clean, small milk bucket under her teats. Set the bucket on the ground; however, if you have a somewhat excitable animal, you may wish to hold the bucket as you milk, so that it is not accidentally spilled.

Next, squat down, or (preferably) sit down using a 3-legged milking stool. These stools not only put you at the perfect height for milking, but the three legs make the milking stool very stable, even on uneven ground. And, should the cow kick or start being difficult, you can get out

of the way much faster. *Never* sit down on the ground to milk, as this puts you in easy kicking distance. Now, check her teats and udder (or bag) for signs of mastitis (fever or swelling are tell-tale signs). If the teats and udder looks good, strip (or milk) each teat four times. This will not only eliminate any dirt or bacteria in the teat, but also allow you to check the milk for clumps or blood, which are further signs that there may be a problem with mastitis.

If the milk looks good, then disinfect the teats with a pre-milking solution. Dip the teats, leaving the mixture on for 30 seconds, then wipe off with a clean towel. At this time, it would be a good idea to swap out the buckets, as the milk from the strip test may have some dirt or bacteria in it, and should be thrown away. Make sure that the bucket you use to catch the milk you are *keeping* is completely clean and large enough to hold the milk.

To milk your cow, hold the teat by wrapping your index finger and thumb around the base of the teat (at the udder), which will contain the milk. Loosen your grip, gently squeezing down, releasing the milk. As an alternative, some will wrap all their fingers around the teat, placing the thumb and index finger in the same spot, and then squeeze from the point of the middle finger to the pinky, forcing the milk down and out. Do *not* jerk or pull on the teat.

You will be milking a quarter (teat) at a time, although some people, with practice, end up being able to milk two teats/quarters at a time. Make sure each quarter is milked out before you move on. Once you gain experience, you be able to tell by looking at the quarter you are milking, as it should have a deflated look. Repeat the process with each teat/quarter.

Once the cow is milked, and providing that she is not currently nursing a calf, apply a post-milking disinfectant to the teats. It should be noted that the pre- and post-milking disinfectants are not the same thing, so be certain that the right one is used at the right time. The cow is now ready to be turned back out into the pasture, or else stay in for the night, depending on the time of day.

CHAPTER 10

MILK

Let us take a brief look at the real reason most people buy a dairy cow in the first place: the milk. Once the cow has been milked, the next steps to consider are how you plan to store and use the milk. Will you pasteurize the milk or use it raw? Are you planning to separate the cream for use in making butter? Are you thinking about making cheese? How are you planning to store the excess milk until you are ready to use it? These questions and more will need to be answered, and it is best to have everything figured out before you start milking your animals.

Pasteurized or Raw Milk

First used in the USA in the 1890s, **pasteurization** is the process of heating liquid (in this case milk) to a specific temperature for a certain amount of time, then removing the liquid from the heat and cooling immediately. There is an argument presently going on, concerning the safety and freedom of choice involved in drinking pasteurized milk, as opposed to drinking fresh, raw milk. Although it is said that pasteurization is not intended to kill all microorganisms, and instead just reduces the number of viable pathogens that could cause illness, it has been found that pasteurization destroys the natural enzymes in milk, eradicating beneficial as well as non-beneficial bacteria and diminishing the natural vitamins found in the milk.

Pasteurized Milk

There are various types of pasteurization, which in turn have different effects on the product:

Low Temperature: In which many of the enzymes and proteins (ideally) remain intact.

High Temperature: Kills enzymes, much of the healthy microorganisms, and denatures the natural proteins. High temperature pasteurization can result in a product that is difficult for some people to digest.

Ultra Pasteurization: Kills not only harmful bacteria and anything else that may present a health risk, but also damages or kills all other nutrients, vitamins and minerals. Some consumers prefer ultra pasteurization, while others feel that basically creates "dead milk." While you *can* use pasteurized milk of a lower intensity for cheese making, ultra pasteurized milk will usually not work.

Home pasteurization machines are readily available; however, they are quite expensive. You can pasteurize milk using a stove and a stainless steel pot (or double boiler) and a kitchen thermometer to maintain even temperatures. Place the milk in the pot or double boiler; if using a pot, you will need to stir to prevent scalding and burning the milk. Slowly heat to: 145˚F and hold for 30 minutes for low temperature pasteurization; 161˚F and hold for 15 seconds for high temperature pasteurization; or 280˚F and hold for two seconds for ultra pasteurized milk. Note that a home pasteurization machine simply makes holding a temperature easier. When the desired temperature is reached and held for the appropriate amount of time, remove the pot of milk from the heat and place the pot in a sink with ice water. Stir until the temperature reaches 40˚F and refrigerate.

Raw Milk

Raw milk still contains its beneficial bacteria and enzymes. It is not pasteurized, nor is it **homogenized** (meaning that particles are broken up and distributed throughout the milk, preventing the cream from rising). Raw milk is considered to be "living."

Drinking raw milk has become controversial, despite having been

consumed for centuries. While the FDA claims that consuming raw milk is dangerous, as anything potentially deadly in the milk has not been removed, raw milk advocates argue that any raw foods can have dangerous microorganisms. Some have even noticed improvements in their health attributed to the consumption of raw milk, including fewer problems with illness and allergens, as well as fewer digestive problems, to name just a few examples. In fact, some have even found that where they cannot drink pasteurized milk without an allergic reaction, they can drink raw milk without difficulty.

In the end, the choice of how to prepare and drink your milk is up to you. Do your research and select the best path for you.

Storage

Even if you only own and milk a single family dairy cow, that cow will still need to be milked up to twice daily to prevent buildup and pain. Storing excess milk is a necessary consideration; so now that you have your milk, how do you store it?

Refrigeration: The most common form of storage, the colder the milk is kept, the longer it lasts. Pasteurized milk needs to be kept at 45°F or lower, with 40°F or lower being best for protecting the quality of the milk. Raw milk needs to be kept at 36 to 40°F. As long as the milk is cold, the bacteria will not cause the milk to sour.

Freezing: Both pasteurized and raw milk may be frozen. There should be 1½ to 2 inches head space in the container the milk is to be frozen in, to allow for expansion. When you are ready to thaw the milk, place it in the refrigerator for a day or two. Shake before using, as the milk may have separated. Milk will last six weeks to three months in the freezer.

Canning: Fresh milk can also be canned just as any other food. However, the resulting product is best used for cooking, not drinking. If you plan on drinking your stored milk, then freezing will be your best option; it won't last quite as long, but it will have a fresher taste.

Dehydrating: Milk may be dehydrated in a dehydrator, after which the "milk chips" are put through a coffee grinder to create powdered milk.

Keep dry and store, adding water when it comes time to rehydrate.

Usage

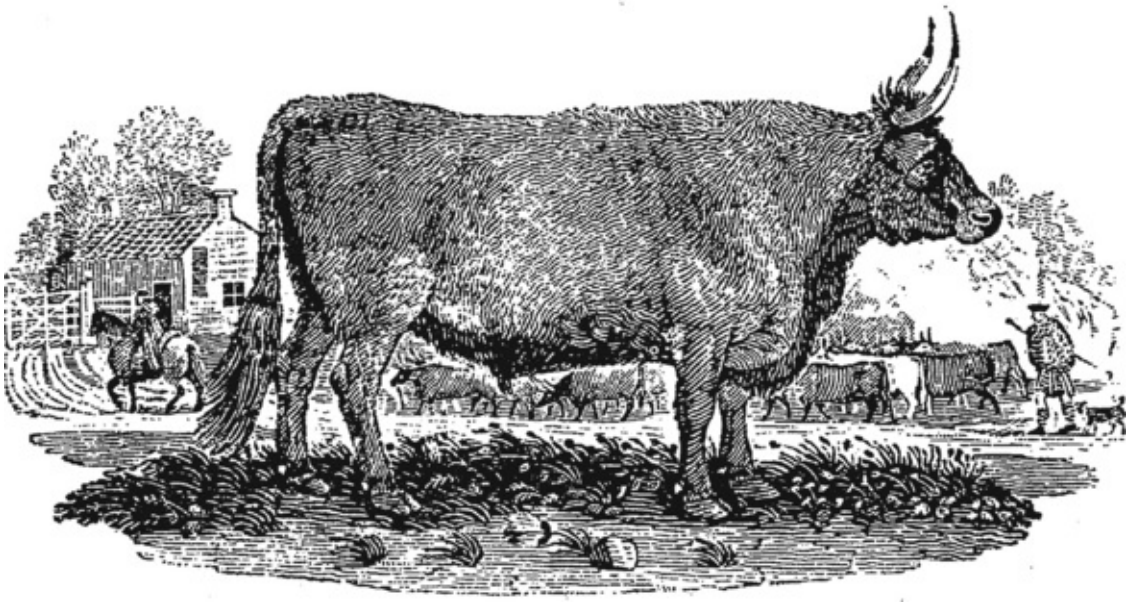
Besides drinking and cooking, there are other uses for your milk and its components. Using a **cream separator**, a machine that separates the milk from the cream, you can have fresh cream for whipped cream and butter. You can use pasteurized cream for this as well, but note that using ultra pasteurized milk is not recommended, as many feel it negatively affects the flavor. From the milk, you can make ice cream, yogurt, kefir (a fermented milk drink similar to liquid yogurt), and many others.

One of the most common milk byproducts, making your own butter affords you another use for your dairy cows. Photo by Charles Haynes under the Creative Commons Attribution License 2.0.

Most likely, the main food you will be making with your excess milk will be cheese. Many cheeses can be made with pasteurized milk, (again *not* ultra pasteurized) but some cheeses will have the best flavor when using raw milk as its base. Although it can be time-consuming, and may take anywhere from days to months to get to the finished product, cheese making is a great way to use excess milk, in addition to being a fun (and engaging) hobby.

Cheese-making is an involved, yet rewarding, activity that dairy farmers can enjoy. Photo by Joi Ito under the Creative Commons Attribution License 2.0.

We have only just touched on the question of milk and what you can do with it. Once you begin your milking time, be prepared to have some fun while you “play with your food!”



CHAPTER 11

BEEF

Although the average small farm may breed a few beef cattle and call it a small herd, most backyard farms or homesteads will typically raise only a calf or two for their own use, perhaps keeping one to sell, or sometimes even raising one for family or friends. However, should you have a dairy heifer or cow that needs to be bred, it is possible to breed the dairy animal with a beef animal. In this way, the dairy animal will have the calf she needs to produce milk; while the offspring will have a bit more of the beef build for you to raise it for meat. However, it is more likely you will be purchasing one or two calves specifically to raise for beef.

Raising Beef Cattle

If you have limited space or limited acreage, you will need to sit down and figure out if raising a few beef cattle is really for you. As with dairy cattle, you will need sufficient room; for example, one steer should have at least one acre of pasture. If you have limited pasture, then you will also need hay, especially if you are in an area that gets a lot of snow in the winter, rendering pastures unavailable. But unlike dairy cattle, you can keep your beef animal in pasture year-round, provided the animals have a good lean-to shelter. If you're concerned about night predator attacks or theft, you can fully enclose their shelter with a sliding door and locking gate. And, although your beef cattle do need attention, they do not need quite as much oversight as dairy cattle.

However, if you *do* have the space, then raising your own beef does have its advantages. Because you are in charge of the animal's management, you determine the care and health of the animal—including the feed, the age at which the animal is sent for processing, and how the meat is handled, as well as the method of slaughter. Differences in tenderness, juiciness and flavor are at least partially (if not primarily) affected and influenced by the age, management and feeding of the animal (in addition to its breeding), so the more you have to do with raising your meat, the better.

Slaughter

When slaughter time does come, you will need to make it as humane as possible. Feeders/finishers are usually ready at 18 to 24 months of age, while pasture finished animals will be ready at 24 to 30 months of age. Some people prefer to have the process done at their farm, as it causes less stress for the animals, and it allows you to have full control as to how the animal is handled. Some learn properly how to do it themselves; others hire someone to come to the farm and do the job. Regardless of which option you choose, you or whoever is doing the slaughtering needs to know how to do it properly and humanely, or something meant to ensure a humane end-of-life could turn tragic and cruel.

Others will choose to take the animal to the processor or slaughterhouse. Should you choose this route, don't be afraid to "interview and inspect." If you are comfortable with what you see, give them a try. If not, see who else is in the area and if you like what they have to offer.

Once you have decided where the slaughtering will be done and when, the animal should be kept off of feed for 24 hours before slaughter, but given water freely. This will help to clean out the system. The animal should also not be stressed out, allowed to run or become excited. Not only is it not good for him, but it will also cause a poor bleed out. If you are choosing to slaughter on the farm, pay attention to the temperature: nights should be 32˚F or lower, to allow the carcass to cool without refrigeration. On farm slaughter will have the full carcass hanging in an outbuilding to cool, so temperatures need to be cold, as small farms do not have fridges big enough to hold a whole, hanging carcass. You will

also have to guard against extreme cold; if there is a risk of freezing, cover the carcass with a clear cover.

Although your primary concern should be the treatment of cattle leading up to the slaughter, take note of the conditions the meat is stored under. Photo by U.S. Department of Agriculture under the Creative Commons Attribution License 2.0.

When it comes time to cut, there are many home butchering books available for purchase, as well as online information (some of which are listed in the Resources section of this book). There are even classes you can take on home butchering, many of which cover everything from proper slaughtering to cutting and packing, while others just cover cutting and packaging. You may need to attend a suitable class, but if you plan to do quite a bit of beef processing yourself, it may be worth the time and money. If you send the beef out for processing, the processor will take care of the cutting, and most will even ask how you want the carcass cut, divided and packaged. For storage/wrapping of meat, vacuum packaging is best. It greatly extends the freezer life of the meat and is a great space saver. It also allows you to see the cut, rather than it being hidden under layers of freezer paper.

You also need to remember to time the purchase of your next calves

properly. Depending on how often you will want or need beef and at what age you get your calves, you may be starting your new calves a few months before your older animals are ready for slaughter or a few months after the older ones are already gone. The time frame will be up to you to figure out and decide.

A typical Spanish appetizer, pinchos consist of small slices of bread upon which a mixture of ingredients is placed and fastened with a toothpick. Photo by Caracas under the Creative Commons Attribution License 2.0.

Veal

As most backyard farmers do not send animals in as veal, this subject is not extensively discussed here. Besides the infrequency of raising veal on backyard farms and in homesteads, the way veal is raised is still a controversial subject in some areas. **Veal** (calves) are kept in inhumane ways for the most part, in order for the muscles not to develop. The use of veal crates has even been banned in some states due to an outcry from consumers, dictating more humane treatment of veal calves. Although treatment is improving, there are still some problems within the industry; however, as with their beef, consumers now want to know how the calves are raised, managed and kept.

The following is a listing of different stages of veal and the ages/weight when they would typically be sent to slaughter:

Bob Veal: The calf is only a few days old and around 60 pounds.

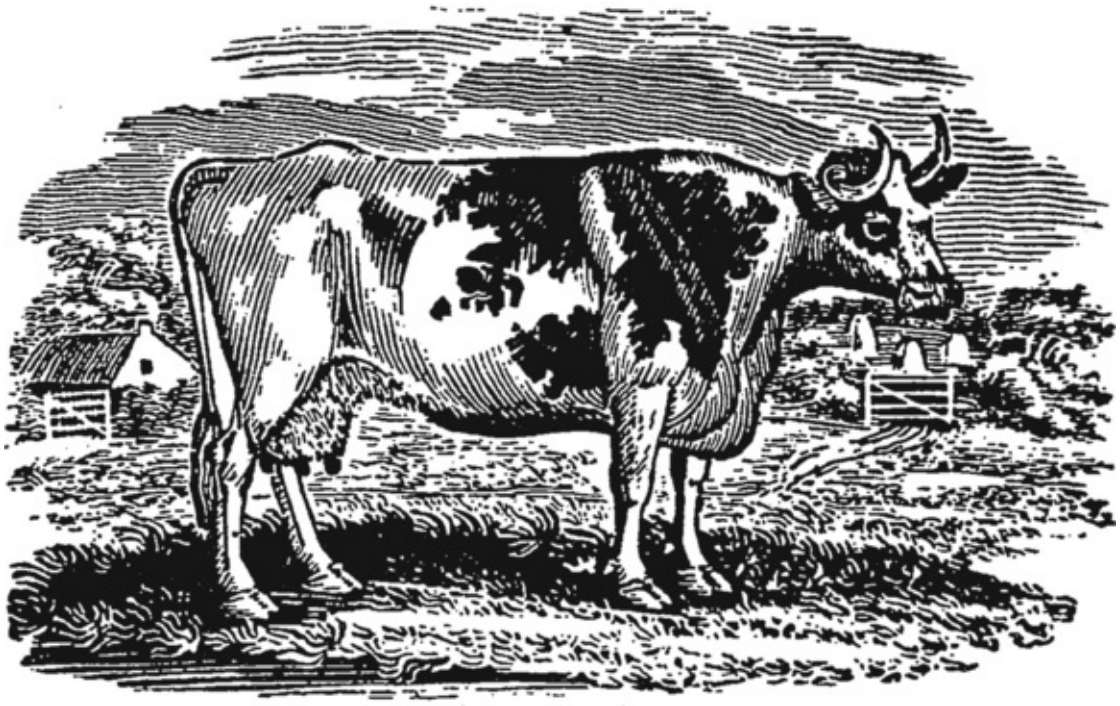
Formula Fed: Calves are raised on milk supplement, ranging from 18 to 20 weeks and 450 to 500 pounds.

Non-formula Fed/Grain Fed: The calf is raised on solids such as hay and/or grain along with milk. They are 22 to 26 weeks old and 650 to 700 pounds.

Baby Beef: The calves are fed grain as soon as they will eat it, to prevent the loss of baby fat. They will be between 700 to 1200 pounds.

Pasture Raised: The calves are raised in pasture with unlimited milk and grass access.

In the end, if you have the space and want full control over your beef, it is best to raise your own. If you find that, for whatever reason, you cannot afford the necessary setup, the next best thing is to purchase from a local farm. Although you will not have the same control over the animal, it will still give you an opportunity to know how the animal was kept, fed and managed.



CHAPTER 12

CULLING

Culling refers to the removal of an animal from the herd. Too often, people think "cull" is the same as "kill," but this is not the case. If you have five dairy cows, and find that you only need three, the two that you then sell as milkers to other farms, or send for sale at auction, are considered to have been culled. That said, if you have five beef cattle, and keep the best three heifers for breeding while sending the other two to slaughter, that is also considered culling. Even the question of survival of the fittest that we see in nature is a form of natural culling.

In reality, the backyard farmer will not need to worry too much about culling; a small homestead with a small herd of beef or dairy cattle, however, will need to concern themselves with it, at least to a minor extent. Culling will increase the efficiency of the herd, improve genetics (if used in conjunction with proper breeding) and give healthier, hardier animals. Because the backyard farmer and small homestead will not see the same volume of culling that a larger operation does, culling will only be briefly discussed here.

A number of things can contribute to the need to cull:

ıge

ameness

ıot breeding

weather conditions (weather creates difficulty in feeding and properly

managing, like in drought)

emperament

;eneral herd reduction

hronic health problems

Although not a complete list, these are some of the most common reasons for culling in a herd.

If you are culling for the first time, you might want to have someone working with you, someone who you trust and who has some experience. They can show you what to look for, desirable and undesirable qualities and traits, signs of potential problems, and provide other important pointers.

Because there is no getting the animal back once he or she is gone, whether it be through sale or slaughter, you will want to be sure that the right animal has been culled. If you are making decisions on your own and are not completely sure about the animals you've chosen, do a temporary marking and call an experienced person to go over your selections with you. Don't forget that some animals at auction or for sale are culls as well, so if you are inexperienced in choosing an animal, be they dairy or beef but especially at auction, take an experienced person with you.

If you *do* need to get into culling at some point, whether it be for cattle or even other livestock you may keep, remember that it is not a complicated process. That being said, it is one that requires knowledge of your animals, their breeds, conformation and health challenges, among other things. And while there is no set age as to when it is best to cull, if you need to cull calves, it is advisable to allow them to grow and develop a little bit first, which will allow you to get a better idea of what you have and what they may become.

Although it is a rare job, the backyard farmer or small homesteader may at some point find themselves having to cull. Just keep in mind the need to choose carefully and ask for assistance if needed. Culling can improve a herd, even a very small one; but if not done correctly, it could also ruin a herd.

CHAPTER 13

OTHER USES FOR CATTLE

While keeping cattle for use as either beef or dairy animals is their most common usage, there *are* other reasons some choose to keep cattle. A few of the most popular or common alternative reasons that people might keep cattle include using them as oxen, as part of a rodeo performance, and as riding animals.

Oxen

Oxen have been used as working animals for centuries, with pictorial evidence having been found indicating their use in ancient Egypt and Mesopotamia. In fact, cattle, oxen and bulls were amongst the most useful animals in ancient Egypt.

Oxen are usually castrated adult males; however, it is not that unusual for cows to be used. In some places, even bulls are used, but this is uncommon due to the challenges of handling bulls for reliable use as work animals. The animal will actually not become an oxen until their training is over, which is typically around the age of four. Until that time, they are referred to as working steers.

In training, the working steer would be taught to respond to signals from the driver. These signals consist of both **verbal commands** and **body language**, along with a goad or a pole/rod being used as a guide. The animals are usually worked in pairs, connected together with a **yoke**, which is a curved wooden-beam like piece of wood, kept between

the oxen pair which allows them to work together.

Make sure that the two animals you link using a stanchion are relatively docile and well-behaved, to ensure that they cooperate with each other. Photo by QUOI Media under the Creative Commons Attribution License 2.0.

There are four types of yoke:

Bow/Neck: This style of yoke goes around the animal's neck.

Head Yoke: This style fits on the head, behind the horns (usually with a cut out area for the horns).

Withers Yoke: Held on by straps, this style fits in the front of the ridge area between the animal's shoulder blades (or withers).

Single Yoke: Built for a single animal's use, this style is usually a bow or withers type.

Although oxen have historically had many uses, today they can be found primarily doing skid logs in areas where low impact logging is necessary.

They may also be seen in living museums, and there are quite a few people who keep oxen for personal use, even today.

Rodeo

Cattle are also used in the rodeo. You can see calves and adults used in roping competitions, but perhaps the most popular part of rodeo is the bull riding.

While no specific breeds are used in the breeding of bucking bulls, Angus, Brahman, Brahman crosses and even Mexican bullfighting stock are commonly used. The average weight of a bucking bull runs at about 1,700 to 1,800 pounds, but can go up to 2,000 pounds or larger.

Riding

Some people will train a cow to be ridden like a horse. This can take time (much more time than most horses), but if you begin training the animal as a calf, gain its trust and slowly build up a relationship, it is possible to eventually be able to ride the animal as it gets older and grows. Examples of cattle breeds successfully trained to ride include White Face Herefords, Texas Longhorns and Brahmans.

Although less common in the United States, cattle can be trained to accept a rider's command. Photo by Bob Owen under the Creative Commons Attribution License 2.0.

These are only a few examples of other ways cattle are used, both

on and off the farm. Should you decide that you want to use one of your animals for something besides typical farm work, have fun learning about all the things you can do with your cattle!

FINAL NOTES

Although they do require an investment in space and time, if you do have the opportunity to include dairy, beef or dual-purpose cattle on your homestead or farm, it can be a very worthwhile asset. For those with limited space, a dual-purpose breed that is good for both milk and meat would be a perfect option. For those with limited space who only want milk, a miniature breed would be an excellent selection, if it is within the budget.

Being able to produce your own dairy and/or beef will give you control over your food, and can also provide an additional income source through the sales of excess dairy, meat or calves. There is nothing quite like being able to have your own butter, cheese or even ice cream, "fresh from the cow." If you are feeling a bit adventurous, you can even learn how to ride.

While beef cattle may only be with you for a few years, the family milk cow can be with you for 10 years or more, oftentimes becoming a family pet as well as a fresh milk provider. Once you have decided to add one or more of these useful animals to your homestead, make sure that you are set up and ready for them *before* they arrive, as it will make the introduction and adjustment easier for both you and the cattle. Then, once everyone is settled in (on both sides of the fence) have fun with your new cattle. You will find them to be a valuable asset in your life; you will never want to go back to store bought milk or meat again!

Enjoy!

FUN FACTS

- The Masai culture of East Africa believes that all cattle are property of the Masai through God. After the World Trade Center collapsed in 2001, a Masai tribe gave 14 cows as a gift to the American people. As cows are very important to the Masai both in terms of wealth and religion, the 14 cows were a significant gift. The animals still reside with the tribe, living with the village elder's herd. Since breeding, the original herd of 14 has grown and each "American" cow is earmarked with their specific brand of two bars, symbolizing the twin towers.
- The Fulani of West Africa are the world's largest group of nomadic cattle herders.
- Legend has it that the great Chicago Fire of 1871 was started by a milk cow owned by Catherine O'Leary, when the cow kicked over a lamp or lantern, supposedly left too close to her leg.
- It is argued that cattle are contributing to the problem of greenhouse gas emissions. However, this is quite a controversial argument which has yet to be satisfactorily proven.
- The oldest cow on record was a Droimeann named Big Bertha. Born on March 17, 1945, she died on December 12, 1993, just short of her 50th birthday. Big Bertha held 2 Guinness World Records: one for her longevity, and the second for having produced 39 calves in her lifetime, several of which her owner still had at the time of the cow's death, the oldest of which was 35. Through "personal appearances," Big Bertha raised $75,000 during her lifetime for cancer and other research.
- The Guinness World Record for the longest horns belongs to a Texas Longhorn in Queensland, Australia, named J.R. At just over 9 feet (as of mid 2012) from end to end, his horns are expected to grow even larger due to his young age.

RECIPES

Barbecue Beef Brisket Sandwiches

1 (8-10 pound) beef brisket
1 cup barbecue rub
1 cup Dijon mustard
Large mesquite chunks, as needed
Hamburger buns for serving
½ cup vinegar mixture from Classic Carolina Vinegar Sauce (this page), plus more for serving

Place mesquite into the firebox of a 250˚F smoker. Trim fat cap to ¼ inch. Place brisket into a large foil pouch and pour in vinegar mixture, ¼ cup Worcestershire sauce, and ¼ cup honey. Place pouch in smoker and cook for 6 hours, changing chunks as needed. Remove brisket from pouch, spread mustard evenly on it, and massage barbecue rub into meat. Place brisket back into smoker and cook for 10 hours, changing chunks as needed.

Separate brisket halves along fat line. Slice across the grain as thinly as possible, chop roughly, and place serving portion in halved buns. Place some vinegar mixture into a squirt bottle and serve with sandwiches.

Classic Carolina Vinegar BBQ Sauce

½ pound butter or margarine
½ cup vinegar (white or cider- flavor will slightly change depending on which is used)
Juice of 1 lemon
1½ tablespoons Worcestershire sauce
1 tablespoon honey
2 teaspoons salt
1 teaspoon black pepper

Melt butter in a sauce pan. Add lemon juice, Worcestershire sauce, honey, salt and pepper. Bring to a boil. Remove from heat. Stir in vinegar and allow to cool.

Basic Yogurt

1 quart milk (any kind)
¼ to ½ cup non-fat dry milk (optional)
1 tablespoon white sugar to feed the bacteria
A pinch salt (optional)
2 tablespoons existing yogurt with live cultures (or you can use freeze-dried bacteria instead)

Heat the milk to 185˚F. Using two large pots that fit inside one another, create a double boiler. This will prevent your milk from burning, and you should only have to stir it occasionally. Next, cool the milk in a cold water bath until it drops to about 110˚F. Warm the starter by letting it sit at room temperature while you're waiting for the milk to cool. This will prevent it from being too cold when you add it in.

Add nonfat dry milk, if desired. Adding about ¼ cup to ½ cup nonfat dry milk at this time will increase the nutritional content of the yogurt. The yogurt will also thicken more easily. This is especially helpful if you're using nonfat milk. Add the starter to the milk. Add 2 tablespoons of the existing yogurt, or add the freeze-dried bacteria. Stir it in or use a blender to evenly distribute the many of bacteria throughout the milk.

Pour the milk into a clean container or containers. Cover each one tightly with a lid or plastic wrap and allow the yogurt bacteria to incubate. Keep the yogurt warm and still to encourage bacterial growth, while keeping the temperature as close to 100˚F as possible.

Place the containers of the cooled milk and starter in a yogurt maker. Make sure they are evenly spaced out and standing up straight (you wouldn't want them to tip over or the yogurt could leak out.) Supply a cover to keep in the heat. That maintains the containers at a temperature which, hopefully, allows the bacteria in the tempered dairy product in the containers go grow and thrive to make yogurt.

Check to see if the yogurt has firmed up. In due time—depending on bacterial strain(s) used, temperature and food available in the dairy product—the dairy product will firm up to a yogurt consistency. This can take as little as 2 hours and can last 12 hours or longer. The shorter times usually result in less tart yogurts and longer times provide completion of the bacterial growth.

Once the yogurt has gotten to the consistency and time desired, remove the containers from the yogurt maker and place them in a refrigerator to cool for storage until consumption. It will keep for 1–2 weeks. Try gently jiggling one of the containers—the yogurt will not move if it is ready and you can take it from the yogurt maker and put it in the refrigerator then. Strain the yogurt through cheesecloth for a thicker consistency.

Beef Fajitas

1 tablespoon vegetable oil
1 inside skirt steak cut into 3 equal pieces
4 small onions, wedged
2 small red and green bell peppers, sliced
½ cup olive oil
⅓ cup soy sauce
Juice of two limes
1 teaspoon red pepper flakes
½ teaspoon freshly ground cumin
4 scallions
3 tablespoons dark brown sugar
Tortillas
Salsa fresca (for garnish)
Chunky guacamole (for garnish)

Combine olive oil, soy sauce, lime juice, red pepper flakes, ground cumin, scallions and dark brown sugar in a blender until smooth. Pour in marinade into a gallon size zip-top plastic bag. Add skirt steak and seal, removing as much air as possible. Refrigerate for at least 1 hour. Remove steak from marinade and place down on the coal area of a preheated charcoal grill. Cook for 60 seconds per side. Remove and wrap tightly with aluminum foil. Let rest for 10 minutes.

Meanwhile, drop a 10 inch cast iron skillet down on the coals. Once pan has heated, toss veggies with vegetable oil. Place in the skillet and cook 2-3 minutes. Remove and keep warm. Slice steak as thinly as possible across the grain. To serve, place a portion of the sliced steak and vegetables inside the tortilla. Roll up and serve with remaining ingredients.

Beef Stir-Fry

½ (6-8 ounce) beef rib eye steak, sliced thinly across the grain on a bias
2 tablespoons soy sauce
1½ Thai bird chilies, finely minced
1 tablespoon minced garlic
½ large onion, finely diced
½ large carrot, peeled and julienned
¼ cup scallions, julienned
2 tablespoons honey
1 tablespoon rice wine vinegar
1 tablespoon toasted sesame seeds
Peanut (groundnut) oil, as needed
Salt and freshly ground black pepper, to taste

Pour enough peanut oil to lightly coat bottom of wok or large skillet and place in preheated oven on medium high heat. Add onion and garlic and cook, stirring, until garlic is golden. Remove and keep warm. Sprinkle beef liberally with salt and freshly ground black pepper. Add 4 beef slices and stir-fry until no longer pink outside and well browned. Remove and repeat until all beef has been cooked.

Add chilies, carrots, soy sauce, honey, vinegar, and scallions and stir-fry until vegetables are lightly browned around edges. Add cooked ingredients together and toss until heated through. Sprinkle with sesame seeds before serving.

Chipotle Sliders

2 pounds ground beef chuck
1 teaspoon salt
1 teaspoon freshly ground black pepper
1 tablespoon chipotle powder
2 teaspoons garlic powder
4-5 chipotles, finely diced
½ cup mayonnaise
16 mini potato buns, halved
16 slices of your favorite cheese

Line two large sheet pans with parchment paper. Put 1 pound of meat on top of each and place a sheet of plastic wrap on top of that. Roll out until meat fills pans. Fold each sheet of meat in half and trim edges, pushing into the meat if required. Cut each sheet into 8 equal patties. Combine seasonings (except for diced chipotles). Sprinkle patties with seasoning mixture.

Heat a griddle to 350˚F. Cook patties in the griddle 2 minutes per side, adding 1 slice of cheese on top at last minute. Meanwhile, toast buns. Combine mayonnaise and diced chipotles. Spread mayonnaise mixture on each bun. Place one patty on bottom half of each bun. Top with upper half and serve warm.

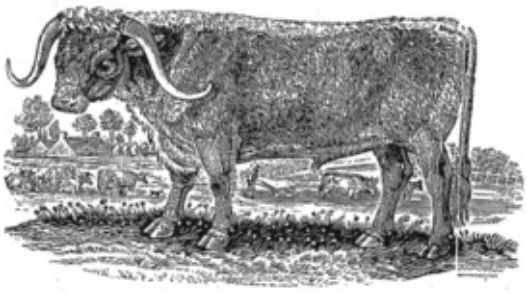
Mincemeat

Spices
2½ teaspoons ground cinnamon
½ teaspoon ground nutmeg
½ teaspoon ground cloves
1 tablespoon dried coffee (regular or decaffeinated)
1 teaspoon salt
½ teaspoon ground black pepper
4 cups sugar
6–8 pounds Baldwin apples
1 whole lemon, remove only the seeds
3– 4 pounds stew beef
2 cups seedless black raisins

Liquids
1 cup meat stock (1½ cups if not using brandy)
1½ cups sorghum (or molasses)
1 cup cider vinegar
½ to ¾ cup brandy

Core apples and remove the seeds, but don't peel. The suet can be removed before cooking and the fat skimmed off that renders from the meat as it cooks if desired. Cube meat and cover with salted water (salt optional). Simmer until tender (may take up to an hour). Remove meat and cook the stock down to the amount needed, or thicken slightly with cornstarch. Put meat through food mill (medium or coarse blade) or equivalent fineness in a food processor. Cut lemon, remove seeds, and purée in a blender, rind and all, with some of the liquid ingredients, or process as finely as possible in a food processor. Grind the apples, (or process using a coarse blade—but not too fine).

Mix into a large, heavy bottom stew pot adding alternately apples, meat, raisins. Add the sugar, spices, the liquids and the lemon purée to the meat and apples using hot meat stock to rinse the last of the sorghum into the mixture. Stir thoroughly. Cook slowly uncovered, stirring often to prevent burning until the mixture is pasteurized and enough of the liquids have evaporated to produce the texture and thickness you want in the finished pie. Let cool. Stir in the ground pepper. Refrigerate, allowing the spices to mellow for several weeks.



Home Cheese Making

(from Wikibooks)

Home cheese making has been in practice for thousands of years and comprised nearly all cheese production until the 19th century. While factory cheese production has taken over the majority of the market, many people still make cheese in the traditional fashion.

Milk contains a wide variety of fats and proteins. Some of these are suspended solids and minerals; others are liquids. The process of separating the solids from the liquids is curdling; the white solid remainder is known as curds, and the greenish liquid remainder whey. Cheese is curds in a wide variety of forms. Soft cheeses are little changed from the original curd; they are typically drained but not pressed, and are usually unaged. Semisoft (or semi-hard) cheeses are drained and lightly pressed, and may be aged. Hard cheeses are drained and well pressed, and are almost always aged.

To cause milk to curdle requires a curdling agent. There are a wide variety of curdling agents available in nature, both plant and animal based - a quick search of the Internet will show some to you. In practice, only a few are regularly used in cheese making. Vinegar is commonly used in soft cheeses, and also assists in making ricotta; it creates a sticky curd in small flecks. Lemon juice is also used in a few soft cheeses. Tartaric acid is the sharp, lemony curdling agent that makes mascarpone cheese, and creates a very fine sticky curd. For most semisoft and hard cheeses, rennet is used. There are three types of rennet in common usage. The most traditional rennet is animal rennet; this is an enzyme taken from the digestive tract of mammals. For vegetarians, more companies are producing a “vegetable” rennet. These are not truly vegetable, but are microbial based.

Color is related to two things: the natural color (which is usually a creamy white to pale yellow), and additives. The most common color additive is annatto, an extract of the dark red seeds of plants in the

Bixacae family, typically grown in South America. Their dark red/orange color dilutes into the typical cheddar-yellow that we're all familiar with. Annatto coloring is generally available in two forms: powder and liquid. The powder can take time to dissolve, and should be added as early in the cheese making process as possible (preferably during pasteurization, as the heat helps it dissolve). The liquid extract is easily mixed in, and can be added at any point before the curdling agent is added.

Traditional food coloring does not work well at all for coloring curds; it tends to remain in the whey instead of the curd. However, adding food coloring to uncolored curds after they have been drained but before they have been pressed leads to an attractive mottled pattern rarely found in commercial cheeses.

The Ten Stages of Cheese Making

Pasteurization

Cooling (in cold water or snow)

Inoculation (in all cheeses that age except surface-ripened cheeses)

Curdling (using a curdling agent)

Cooking (typically only rennet-based cheeses)

Draining

Salting (mixed into the curds)

Pressing (on most semisoft cheeses and all hard cheeses)

Brining (on brined cheeses)

Aging (on aged cheeses)

General Rules for Making All Cheeses

- Always pasteurize your milk, even if you bought it from the store.
- When pasteurizing milk, **do not forget to stir**. If you're forgetful, set a timer. If you forget to stir, the milk will scald; scalded milk should never be used.

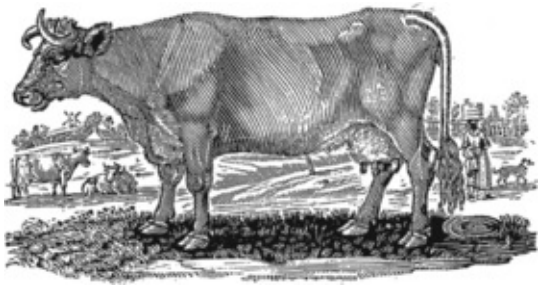
- Do your best to avoid contaminating your sample. Try not to put anything that's not clean (including unclean hands) into your cheese.
- Make milk-cheeses in batches of at least two gallons to save time (requires a large pot).

Farm Cheese

1 gallon milk
2 teaspoons sea salt
½ cup white vinegar

Line a colander with a double layer of cheesecloth. Pour the milk into a large kettle and bring to a boil over medium heat, stirring frequently to prevent the milk from scorching. When it comes to a boil, immediately reduce the heat to low, and stir in the vinegar. The milk should immediately separate into curds and whey. If it does not separate, add a bit more vinegar (one tablespoon at a time) until you see the milk solids solidify into curds.

Pour the curds and whey into the lined colander. Rinse them gently with cool water, and sprinkle the curds with salt. Tie up the cheesecloth, pressing gently with your hands to remove excess whey. Let the cheesecloth hang for 1–2 hours, and then open it up and chop it coarsely. Store in the refrigerator for up to one week.



RESOURCES

Apps

The following apps can be found free of charge:

Beef Cow BCS
Track and organize body condition for beef. More for those with a small or large herd but could be of use for others.

Cattle Breeding Calculator/Gestation Calculator
Calculating service, return and calving dates.

Cow Farming Optimizing
For dairy use, allows you to calculate feed, cost and productivity.

Lely T4C in Herd- Cow
Keep information about individual dairy cows.

Livestock Gestation Table
Gestation-only charts and calendars for use with livestock.

Livestock Manager
Assists in keeping track of livestock activity.

Websites

American Livestock Breed Conservancy
(www.albc-usa.org)

Organization that focuses on rare and endangered livestock breeds, including a number of cattle breeds.

Have A Cow—A Pet Cow!
(www.hobbyfarms.com)
A great resource for backyard farmers looking to raise cattle for the first time, with advice and information to help with your preparations.

The New Century Homesteader
(newcenturyhomesteader.blogspot.com)
Includes workshops, programs, and writings on homesteading. Feel free to contact with questions on backyard farming, small and no space gardening.

Urban Farm Online
(www.urbanfarmonline.com)
Covers a range of topics on urban farming and livestock.

Periodicals

Acres USA: The Voice of Eco Agriculture
(www.acresusa.com)
Excellent magazine for sustainable and organic farming.

Cattle South
(www.cattlesouth.com)
Cattle publication for the South East.

Countryside and Small Stock Journal
(www.countrysidemag.com)
One of the first publications covering self sufficiency.

Farming Magazine
(www.farmingmagazine.com)
Excellent magazine focusing on multiple aspects of farming in the North

East, including beef and dairy cattle and value added.

Grit
(www.grit.com)
Excellent publication for the small farm, homestead, urban farm, etc.

Hoards Dairyman
(www.hoards.com)
National dairy farming magazine begun in 1885.

Hobby Farms
(www.hobbyfarms.com)
Magazines in all areas of urban farming, backyard farming and more.

Mother Earth News
(www.motherearthnews.com)
One of the first publications developed for those interested in homesteading, small farms and self sufficiency.

Brochures

Johne's Disease: Should You be Concerned?
(www.beef.org)
National Cattlemen's Beef Association. An excellent and straightforward pamphlet on Johne's Disease.

Organic Valley Cropp Cooperative
(www.organicvalley.coop/farmer)
Large cooperative that also has excellent technical bulletins for cattle and calves.

Farms/Breeders

Reach Simmentals
(www.reachsimmentals.com)

Sales of pure and full blood Simmentals, located in South New Berlin, NY.

Extension Offices

Each county in each state has its' own extension office. Check within the county that you live in for the location of your local office.

Breed Associations

Most cattle breeds have some type of breed association with branches within the states.
Check your individual state for associations in the breed that interests you.

Books

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